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# THE DERBIDÆ OF THE PHILIPPINE ISLANDS

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ONE PLATE AND FOUR TEXT FIGURES

The Philippine Archipelago bids fair to be one of the richest regions in the world in the delicate little insects included in the family Derbidæ. For many years the four species recorded by Stål [1] were all that were known from the Archipelago; Banks has added a few species, and Melichar, working upon a part of Professor Baker's collection, has added others. The present paper brings the total to 98 species in 39 genera. There are about a dozen species of the Rhotaninæ that I have not yet been able to identify satisfactorily, so that the total number of species now known is well over one hundred.

The material I had at my disposal was the large collection made by Prof. C. F. Baker, collections belonging to the Philippine Bureau of Science and the College of Agriculture, and collections made by myself during my three visits to Luzon. The greater portion of the Baker collection and all of my own were made on Mount Maquiling and in the neighboring district of Los Baños, situated in Laguna Province, Luzon; apart from these, a few specimens from Baguio, Mount Banahao, and a few other localities are all we have of the Derbidæ of Luzon. The large island of Mindanao is represented by small collections from Davao, Zamboanga, and one or two other localities; there are a few

[1] *Öfv. Vet. Akad. Förh.* (1870), 27, 750.

specimens from the adjacent island of Basilan. A few specimens from Palawan and from Negros complete the material known from the Archipelago. It is evident, therefore, that our collections are far too incomplete to judge with any certainty of the endemism in the various islands. Of the 98 species listed, 68 are recorded from Luzon and 36 from Mindanao, only 12 being common to the two islands. I believe that further collecting will show a very high percentage of species peculiar to the different islands. Many of the species have been erected upon characters found in the male genitalia—the form of the pygophor, anal segment, and genital styles being the characters used—but the final word on endemism will not be spoken until a careful comparison has been made of the ædeagi of the species represented in two or more islands. The case of *Kamendaka mindanensis* and its three allies is a good illustration of the truth of this contention. Objections have been raised to "phallic" species, but if distinct structural differences are found in these organs, I fail to see why they should not be considered specific. If an equal difference in structure were to be found in the head, the thorax, or the abdomen, there would be no objection to treating them as specific; in fact in some cases they would be used for erecting genera. Unfortunately the majority of fulgorids have been described without any reference to their sex.

Of the 98 Philippine derbids, only 13 are reported from foreign countries, and these are mainly from Borneo and Java. This confirms a remark I made elsewhere that there is a high endemism among these insects in the islands of the Malay Archipelago. The derbid fauna of British India, including Ceylon and Burmah, numbers 53 species, that of Java numbers less than 30, and more collecting has been done in those regions than in the Philippine Islands.

But little is known of the life history of these small creatures; the eggs have never been described, and I have failed to find them. The few nymphs that have been described all live in rotten wood or under old bark. *Proutista mœsta* (Westwood) is a common insect on sugar cane in Java, the Philippine Islands, Formosa, and some other countries of the Pacific, but nothing is known of its eggs or young.

Fifty-five of the 68 species of derbids found in Luzon have been taken on Mount Maquiling and in the neighboring locality of Los Baños. This is a remarkable botanical and entomological region and deserves a passing reference. Sixty-five kilometers from the city of Manila, the mountain rises from the

southern shore of Laguna de Bay. This lake is the largest body of fresh water in the Archipelago and nearly cuts Luzon into two portions, its western shore being about 15 kilometers from Manila Bay and its eastern shore less than 30 kilometers from the eastern coast. The mountain rises to the height of 1,143 meters, and its base covers an area of some 10,000 hectares; it is of volcanic origin, but the only signs of volcanic activity at present are a small, boiling-mud crater, on the northeast flank of the mountain, and a series of hot mineral springs, along the northern base, some of which arise at the edge of Laguna de Bay and give the name to the town of Los Baños.

The mountains along the eastern coast hold back the moisture of the winter monsoons, so that the western portion of the island experiences considerable dryness from January to May; Mount Maquiling is on the eastern edge of this dry district, but its peak is high enough to support a wet forest. Mount Banahao (some 2,300 meters high) is only 50 kilometers from the former mountain and is well within the wet, eastern district. The difference in the growth of vegetation in these two districts is very great.

The flora of Mount Maquiling has been investigated by Dr. F. W. Foxworthy, of the Bureau of Forestry; by Dr. E. B. Copeland, of the College of Agriculture; and by Dr. W. H. Brown, of the Bureau of Science. There have been recorded from the mountain 1,814 species of ferns and of flowering plants, representing 164 families; 800 of these species are trees. Not only are the plant species on the mountain remarkably numerous, but the mixed nature of the vegetation in any one station is also notable.

As might have been expected, the rich and varied flora of the mountain supports a rich insect fauna. Of the many species that Professor Baker and his collector, Julian Valdez, have already secured, only a small part has been identified or described.

Few finer localities than Mount Maquiling could be found for the establishment of a biological station; situated on the edge of a large lake, with higher mountains in a different climatic province within easy reach, this natural botanic garden should be to the northwestern portion of the triangular area comprising the Malay Archipelago what Buitenzorg is to the southwestern portion. The College of Agriculture and the School of Forestry are situated at the northeastern foot of the mountain and form a center around which a biological station could be formed. Although the facilities one finds at Buitenzorg are

lacking at Los Baños, yet the same spirit of hospitality and the desire to assist visiting naturalists are present, and it is to be hoped that at a not too far distant date means will be found to enable workers to take full advantage of this wonderful botanical and entomological field.

As an economic entomologist who has spent a number of years traveling in the Malay and South Pacific Islands in search of beneficial insects, I can fully appreciate the practical value of an entomological station in such a locality. Why should the moth sugar-cane borer (*Diatræa striatalis* Sn.) be so numerous and destructive in Java and Formosa and rare in the Philippine Islands? Why should one species of leaf-hopper (*Perkinsiella*) nearly ruin the sugar industry in the Hawiian Islands and seven species do only minor damage in the Philippine Islands? What keeps in check the thousands of phytophagous insects of great fecundity and rapid development that inhabit these tropical islands? These and similar problems when solved will be the saving of valuable crops all over the Tropics, and the knowledge of these subjects will enable us to reason on biological subjects, such as natural selection and evolution, with a better understanding. In the past experimental zoölogy has been undertaken almost entirely in temperate climates, but in the future a great portion of this will be done in the Tropics on account of the greater facilities. Biologists working on the laws of inheritance often have to wait a year for one generation in the Temperate Zones; whereas, in the Tropics, it would be possible to have ten or a dozen in the same period. For these and for other reasons I would plead for biological stations in such localities as Mount Maquiling—even if, by so doing, I stray away from the subject of this paper.

In a former paper [2] I attempted to tabulate all of the genera of Derbidæ. Since then many forms have passed through my hands, and the tables have stood the test fairly well. Except in certain details I am not inclined to make many alterations in that work. What I formerly called groups I now treat as subfamilies. *Nisia* and its allies I excluded from the family; *Derbe* and *Mysidia* I at present place with the *Zoraida* group; *Rhotana*, along with five or six allied genera, remain in old group IV (Rhotaninæ).

The horismology of the neuration is indicated in the figures; the "shoulder keels" are well-developed carinæ extending from the anterior margin of the pronotum near back of eye to the

[2] *Bull. Hawaiian Sugar Planters' Assoc., Div. Ent.* (1913), 12.

posterior margin of pronotum; in some cases these are continued along the hind edge to the lateral margins, which are curved and form a chamber—the "antennal chamber"—behind the antennæ; the "subantennal process" is a flange, or plate, on the gena below the antenna.

All measurements are taken from apex of head to anus and from apex to base of one tegmen.

My thanks are due to Prof. C. F. Baker for the loan of his collection and for the gift of many specimens, including types; to Prof. C. S. Banks for allowing me to work over the collection of the Bureau of Science and for gifts of specimens; and to the dean and the faculty of the College of Agriculture, University of the Philippines, for their help and hospitality during my stay in the Philippine Islands, while studying the parasites of certain lamellicorn beetles.

Types, when not otherwise stated, will be deposited in the collection of the Hawaiian Sugar Planters' Association, Honolulu, Hawaii, which already contains nearly a third of the types of this family.

The following genera and species are considered in this paper:

PHILIPPINE DERBIDÆ

*Goneokara pullum* Muir.
*Neocyclokara flava* g. et sp. nov.
*Phaciocephala badia* sp. nov.
*Phaciocephala pseudobadia* sp. nov.
*Syntames tubulifer* Melichar.
*Herpis flavescens* sp. nov.
*Herpis philippina* sp. nov.
*Herpis pallidinervis* sp. nov.
*Vekunta lineata* Melichar.
*Vekunta palawanensis* sp. nov.
*Lamenia albicosta* sp. nov.
*Lamenia bakeri* sp. nov.
*Lamenia philippina* sp. nov.
*Lamenia flavescens* Melichar.
*Lamenia pseudotypicus* (Muir).
*Lamenia croceus* (Muir).
*Lamenia pallidinervis* sp. nov.
*Neolamenia flava* g. et sp. nov.
*Pyrrhoneura maculata* sp. nov.
*Phantasmatocera fuscofasciata* sp. nov.
*Dendrokara monstrosa* Melichar.
*Dendrokara torva* Melichar.
*Neodendrokara crescentiformis* g. et sp. nov.
*Nesokaha lineata* Muir.
*Nesokaha philippina* Muir.
*Nesokaha rubrinervis* sp. nov.
*Nesokaha nigropunctata* sp. nov.
*Kaha flava* sp. nov.
*Kaha pseudomedia* sp. nov.
*Kaha angulata* sp. nov.
*Eosaccharissa philippina* sp. nov.
*Eosaccharissa pulchra* sp. nov.
*Eosaccharissa fusca* sp. nov.
*Kamendaka mindanensis* sp. nov.
*Kamendaka luzonensis* sp. nov.
*Kamendaka tayabasensis* sp. nov.
*Kamendaka maquilingensis* sp. nov.
*Kamendaka flava* sp. nov.
*Kamendaka incommoda* sp. nov.
*Nicerta palawanensis* sp. nov.
*Megatropis obliquefasciata* Melichar.
*Megatropis immaculata* Muir.
*Megatropis sanguinea* sp. nov.
*Megatropis interruptolineata* Melichar.
*Banksiella pulchra* g. et. sp. nov.
*Leptaleocera nigrofasciata* sp. nov.

*Leptaleocera bakeri* Melichar.
*Leptaleocera banksi* sp. nov.
*Heronax maculipennis* (Melichar) comb. nov.
*Mysidioides tagalica* sp. nov.
*Zeugma valdezi* sp. nov.
*Zoraida insulicola* Kirkaldy.
*Zoraida maculata* sp. nov.
*Zoraida javanica* (Westwood).
*Zoraida westwoodii* (Stål).
*Zoraida lutescens* sp. nov.
*Zoraida hyalina* Melichar.
*Zoraida flaviventris* sp. nov.
*Zoraida sinuosa* (Boheman)?
*Zoraida melichari* sp. nov.
*Losbañosia bakeri* g. et sp. nov.
*Peggia nitida* (Stål). comb. nov.
*Peggia irrorata* sp. nov.
*Peggiopsis dorsimaculata* sp. nov.
*Peggiopsis pallida* sp. nov.
*Peggiopsis pseudojavana* sp. nov.
*Peggiopsis puncticosta* (Melichar) comb. nov.
*Peggiopsis dorsopunctata* (Melichar) comb. nov.
*Peggiopsis pseudopuncticosta* sp. nov.
*Peggiopsis flavicornis* (Melichar) comb. nov.
*Peggiopsis pseudoflavicornis* sp. nov.
*Peggiopsis ståli* sp. nov.
*Mindana latifrons* g. et sp. nov.
*Proutista mœsta* (Westwood).
*Proutista nigritarsis* sp. nov.
*Neocamma trifasciata* Melichar.
*Paraproutista trifasciata* sp. nov.
*Paraproutista luzonensis* sp. nov.
*Paraproutista maculipennis* (Banks) comb. nov.
*Paraproutista platypes* sp. nov.
*Paraproutista fuscipennis* sp. nov.
*Acanthocera punctifrons* Melichar.
*Sikaiana makii* Muir.
*Sikaiana vitriceps* sp. nov.
*Muiria iridescens* sp. nov.
*Leomelicharia nigrovittata* sp. nov.
*Leomelicharia delicata* sp. nov.
*Leomelicharia delicatissima* sp. nov.
*Leomelicharia pulchra* sp. nov.
*Distantinia nigrocacuminis* g. et sp. nov.
*Rhotana punctovenosa* Melichar.
*Rhotana excelsa* Melichar.
*Rhotana basipunctulata* Melichar.
*Levu lucida* Muir.
*Levu irrorata* sp. nov.
*Decora pavo* Bierman.
*Mecynorhynchus fuscus* Muir.
*Mecynorhynchus hyalinus* Muir.
*Mecynorhynchus kershawi* Muir.
*Mecynorhynchus nigropunctatus* nom. nov.

The following characters will separate the subfamilies, the tribes, and the genera of the present known Philippine forms:

*Key to the subfamilies of Philippine Derbidæ.*

$a^1$. Tegmina exceptionally long and narrow, wings less than half the length of tegmina, sometimes very minute; or, if wings longer, cubitus with 3 to 11 veins reaching hind margin.....**Derbinæ.**

$a^2$. Tegmina not long and narrow, wings more than half the length of tegmina.

$b^1$. Cubital veins not reaching to hind margin, but ending in the extended claval vein; third claval cell open, extending along hind margin to last apical cell.....**Otiocerinæ.**

$b^2$. Cubital veins ending in hind margin of tegmen; third claval cell closed, not extending to last apical cell.

$c^1$. Cubitus simple or furcate, not running into first median sector. **Cenchreinæ.**

$c^2$. Cubitus connected with first median sector, forming an angular or diamond-shaped cell, sometimes with a cross vein near base of first sector, forming a triangular cell.....**Rhotaninæ.**

*Key to the genera of Philippine Cenchreinæ.*

$a^1$. Subcosta and radius separate from near base, subcostal cell long.
  $b^1$. No subantennal process, or, if present, very small.
    $c^1$. Shoulder keels large, forming a distinct antennal chamber. **Phaciocephalus.**
    $c^2$. Shoulder keels absent or very small, forming no distinct antennal chamber ..... **Goneokara.**
  $b^2$. Subantennal process well developed.
    $d^1$. Subcosta and radius separate from near base; tegmen with apex broad, roundly truncate ..... **Herpis.**
    $d^2$. Subcosta and radius separate slightly before middle; tegmen long, apex pointed ..... **Neocyclokara.**
$a^2$. Subcosta and radius contiguous to middle or beyond; subcostal cell short.
  $e^1$. Subantennal process absent or but slightly developed ..... **Vekunta.**
  $e^2$. Subantennal process present.
    $f^1$. Antennæ reaching to apex of head, large and flattened ..... **Neolamenia.**
    $f^2$. Antennæ small, subovate or subpyriform ..... **Lamenia.**

*Key to the genera of Philippine Otiocerinæ.*

$a^1$. Media not contiguous to radius or separating before the forking of subcosta and radius.
  $b^1$. First median sector arising before the apical third of tegmen.
    $c^1$. Forking of subcosta and radius occurring at or before the middle of tegmen; subcostal cell long.
      $d^1$. Antennæ with first joint long, much longer than wide.
        $e^1$. No subantennal process ..... **Dendrokara.**
        $e^2$. Subantennal process present ..... **Neodendrokara.**
      $d^2$. First joint of antennæ short; not or but little longer than wide.
        $f^1$. No subantennal process.
          $g^1$. In profile vertex and face forming a curve, not produced greatly in front of eyes ..... **Pyrrhoneura.**
          $g^2$. In profile head angular or extending well in front of eyes.
            $h^1$. Carinæ of vertex meeting at apex, in profile angular at junction of face and vertex ..... ♂ **Phantasmatocera.**
            $h^2$. Carinæ of vertex not meeting, in profile face and vertex forming a continuous curve ..... ♀ **Phantasmatocera.**
        $f^2$. Subantennal process present.
          $i^1$. In profile head with vertex forming a curve, face not greatly produced ..... **Nesokaha.**
          $i^2$. In profile head with vertex quadrate or angular, greatly produced ..... **Kaha.**
    $c^2$. Forking of subcosta and radius beyond middle of tegmen; subcostal cell short.
      $j^1$. In profile vertex and face obtusely angular; face strongly curved, especially on apical half ..... **Eosaccharissa.**
      $j^2$. In profile vertex and face acutely angular; face only slightly curved ..... **Kamendaka.**
  $b^2$. Median sectors confined to apical third of tegmen.
    $k^1$. Costal edge of tegmen not entire ..... **Banksiella.**
    $k.^2$ Costal edge of tegmen entire.
      $l^1$. Eyes in front reaching nearly to base of clypeus.

$m^1$. Eyes reaching margin of clypeus, reniform, anterior half equal in size to posterior half ..... Nicerta.
$m^2$. Eye reaching not quite to base of clypeus, subreniform, anterior half much narrower than posterior half ..... Leptaleocera.
$l^2$. Eye in front not reaching nearly to base of clypeus.... Megatropis.
$a^2$. Media not separating from radius until after forking of subcosta and radius.
$n^1$. Subantennal process absent ..... Heronax.
$n^2$. Subantennal process present ..... Mysidioides.

*Key to the genera of Philippine Derbinæ.*

$a^1$. Eyes in front not reaching to base of clypeus, subcostal cell long, sometimes very narrow (Derbini).
$b^1$. Shoulder keels large, subantennal process present ..... Zeugma.
$b^2$. Shoulder keels not large, subantennal process absent.
$c^1$. Antennæ terete, subterete, ovate, or subovate.
$d^1$. Four cubital veins reaching hind margin, first median sector included in cubital system; antennæ large, longer than face (female with genital styles normally developed).
$e^1$. Hind edge of tegmen entire ..... Zoraida.
$e^2$. Hind edge of tegmen serrate ..... Losbañosia.
$d^2$. Antennæ short, not longer than face (female with genital styles abortive).
$f^1$. Clavus closed, claval suture and vein entering hind margin (according to Melichar's figures).
$g^1$. Subcosta and radius separating near base, amalgamating at apex; clypeus large, carinæ distinct ..... Neocamma.
$g^2$. Subcosta and radius not amalgamated at apex; clypeus smaller, carinæ indistinct ..... Acanthocera.
$f^2$. Clavus open, first claval vein extended to cubital system.
$h^1$. Media with 4 or 5 unbranched sectors..... Proutista.
$h^2$. Media with 4 or 5 sectors, the second furcate (first true sector attached to cubital system) ..... Paraproutista.
$c^2$. Antennæ flattened (female with genital styles normally developed).
$i^1$. Basal fourth of costa arcuate ..... Peggia.*
$i^2$. Basal fourth of costa not arcuate.
$j^1$. Face very narrow, vertex not broader than long..... Peggiopsis.
$j^2$ Face nearly as broad as long, vertex broader than long.. Mindana.
$a^2$. Subcostal cell very short or absent; eyes in front reaching to base of clypeus (female with genital styles abortive) (Sikaianini).
$k^1$. Cubitus arising from base of tegmen, basal median cell present.
$l^1$. Basal median cell broad and short, not reaching halfway along tegmen.
$m^1$. Antennæ much shorter than thorax and head together, cylindrical, slightly constricted about middle..... Sikaiana.
$m^2$. Antennæ as long as head and thorax together or nearly so. Muiria.
$l^2$. Basal median cell very narrow, reaching to about middle of tegmen. Leomelicharia.
$k^2$. Cubitus arising from media about one fourth from base.... Distantinia.

* As I am in doubt as to this genus, I leave it distinct from *Peggiopsis* for the present.

*Key to the genera of Philippine Rhotaninæ.*

$a^1$. Lateral carinæ of face not contiguous, or only so for a very short distance between eyes; face not linear ..... Decora.
$a^2$. Lateral carinæ of face contiguous to near apex.
  $b^1$. Triangular cell at base of first median sector.
    $c^2$. Shoulder keels well developed ..... Levu.
    $c^2$. Shoulder keels absent or very slightly developed ..... Rhotana.
  $b^2$. No triangular cell at the base of first median sector. Mecynorhynchus.

## DERBIDÆ

### CENCHREINÆ

### Genus GONEOKARA Muir

**Goneokara pullum Muir.**

*Goneokara pullum* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 33.

MINDANAO, Dapitan (*Baker*), one male. The type of this species is from Borneo.

### Genus NEOCYCLOKARA novum

Neuration of tegmina similar to that of *Cyclokara girdlestoni* Muir; two cubital veins, four median sectors, the first furcate; wings reaching one fourth from apex of tegmina. Vertex subquadrate, base wider than apex, in profile making a continuous curve with face; much longer than broad, apex broader than base, narrowest between eyes, sides carinate, slightly arcuate; clypeus large, a little longer than face, flat on sides and front, lateral carinæ distinct, median indistinct, apex reaching hind coxæ, apex of labium reaching apex of abdomen; subantennal plate forming a quadrate plate below antenna, longer than broad; antennæ very small, ovate. Pronotum widely and shallowly emarginate on hind margin, shoulder keels well developed, lateral margins turned dorsad and forming, with subantennal plate, an antennal chamber; mesonotum broader than long, posterior angle rounded, lateral angles behind middle.

**Neocyclokara flava sp. nov.** Plate I, figs. 9 and 17.

*Male.*—Yellow, slightly fuscous on abdominal tergites. Tegmina hyaline, opaquely white with waxy secretion, a light fuscous mark across clavus, another from hind margin at apex of clavus to media, and as a narrow, bent mark to costa, bases of median sectors fuscous, and with fuscous at apices of subcostal and radial cells; wings opaquely white with waxy secretion, veins white.

Ventral edge of pygophor straight, lateral edges obtuse-angularly produced along the side of the anal segment; anal segment very small, annular; genital styles long, apex rounded, dorsal edge straight, ventral edge produced into an obtuse angle in middle, two curved spines on the inner side about middle, one near the dorsal and the other near the ventral edge.

Length, 2 millimeters; tegmen, 4.

*Female.*—Similar to the male in size and color.

MINDANAO, Lanao, Kolambugan (*Banks*), cotype in College of Agriculture, No. 18101; LUZON, Benguet, Baguio (*Baker*). The type is a male from Baguio.

## Genus **PHACIOCEPHALA** Kirkaldy

### Phaciocephala badia sp. nov.

*Male.*—Clypeus, face, vertex, and dorsum of thorax and abdomen black or fuscous brown, the rest fuscous yellow; in some specimens face and clypeus also yellow; tibiæ and tarsi fuscous. Tegmina hyaline, fuscous, veins much darker, darker color spreading into cell; wings fuscous, veins brown. The whole insect often covered with white, waxy secretion which gives it a blue-black appearance.

Ventral edge of pygophor angularly produced, lateral edges slightly arcuate; anal segment narrowly cordate, the broadest portion forming the apex, a narrow emargination extending nearly to anus, anus in middle; genital styles long, dorsal edge entire, slightly curved upward, basal half of ventral edge subparallel to dorsal edge, then produced into a quadrate process beyond which it tapers to the pointed apex.

*Female.*—Posterior edge of pregenital sternite roundly produced in middle.

Length, 4 millimeters; tegmen, 6.

LUZON, Los Baños (*Baker, Muir*); Mount Maquiling and Mount Banahao (*Baker*), cotype in College of Agriculture, No. 18117. This comes near to *P. funebris* Muir [3] from Larat.

### Phaciocephala pseudobadia sp. nov.

Yellow or very light brown, a dark brown spot in antennal chamber; posterior border of pronotum, carinæ of vertex, and anal segment dark fuscous or brown, dorsum of abdomen fuscous, apices of tibiæ fuscous; tegmina hyaline, opaque with waxy secretion, veins brown, the color spreading into cells, especially on basal half; wings hyaline, opaque with waxy secretion, veins brown.

[3] *Bull. Hawaiian Sugar Plant. Assoc., Div. Ent.* (1913), 12, 35.

The genitalia differ from those of *P. badia* in having the medioventral process more acute; the anal segment wider, with the apical emargination slightly wider; the quadrate process on dorsal edge of genital style more rounded; and the apex shorter and blunter.

Length, 4 millimeters; tegmen, 6.

MINDANAO, Lanao, Kolambugan (*Banks*), cotype in College of Agriculture, No. 18102, on nipa palm, *Nipa fructicans* Wurmb.

This species, like *P. badia*, is often covered with a white waxy secretion.

## Genus **SYNTAMES** Fowler

**Syntames tubulifer** Melichar.

*Syntames tubulifer* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 269.

I consider that this species represents a new genus of Cixiidæ; the neuration is not that of *Syntames*, and the long apical joint of the labium excludes it from the Derbidæ. The peculiar abdominal structures are somewhat allied to those of *Benna* and *Bennaria*.

## Genus **HERPIS** Stål

**Herpis flavescens** sp. nov.

Congeneric with *H. vulgaris* (Fitch); subcosta and radius separate from base, vertex broader than long.

*Male.*—Yellow or fuscous yellow, eyes dark brown, dorsum of abdomen darker. Tegmina yellow or fuscous yellow, veins slightly darker; wings fuscous with brown veins.

Pygophor short, ventral and lateral edges straight; anal segment considerably longer than wide, gradually narrowing to near middle, then subparallel-sided to apex, which is obtusely pointed, a small dorsal ridge near the middle of base, anal style at apex on ventral surface; genital styles large, subquadrate, narrowest at base, widest at apex, on apical edge two small, angular projections turned inward.

*Female.*—Pregenital sternite exceedingly short at sides, posterior edge angularly produced.

Length, 1.75 millimeters; tegmen, 3.75.

LUZON, Tayabas, Mount Banahao (*Baker, Muir*); Malinao (*Banks*); Laguna, Los Baños (*Banks*), College of Agriculture, No. 18119.

**Herpis philippina** sp. nov.

*Male.*—Face, clypeus, legs, and sides of pronotum yellow, rest fuscous brown. Tegmina dark fuscous, veins darker; wings

fuscous with dark veins. The insect sometimes entirely covered with a white, waxy secretion giving it a blue-black appearance.

Ventral edge of pygophor straight, lateral edges slightly and very obtusely angular; anal segment long, narrow, apex and base subequal in width, narrowing to middle, a small dorsal projection near base, anus at apex, below which the apical corners are produced into two small spines; genital styles large, broadly lanceolate, apex turned inward and produced into a long spine.

*Female.*—Pregenital sternite very short at sides, angularly produced to middle.

Length, 2.25 millimeters; tegmen, 4.

LUZON, Laguna, Los Baños (*Muir*); Tayabas, Lucena (*Banks*), cotype in College of Agriculture, No. 18118.

**Herpis pallidinervis** sp. nov.

*Male.*—Vertex a little broader than long, a fine carina divides it from face; carinæ of mesonotum straight, parallel. Neuration of tegmina irregular, three small spurs from subcosta into costal cell and four from radius into radial cell forming three small, incomplete cells within the radial cell., Brown, carinæ of head and thorax lighter brown. Tegmina brown with pale veins; wings fuscous with dark veins.

Ventral edge of pygophor straight, lateral edges slightly arcuate; anal segment subquadrate, length about twice the width of base, apex truncate and narrower than base, anus at apex; genital styles subquadrate, base narrower than apex, apex subtruncate with a deep emargination, a deep keel extends from base to apex down the middle, a small rounded process arises from the inside of the dorsal edge near the middle.

Length, 2 millimeters; tegmen, 3.7.

*Female.*—Similar to the male. Pregenital sternite short, especially at sides, posterior edge obtuse-angularly produced from sides to middle; anal segment very small, apex rounded.

MINDANAO, Davao (*Baker*).

## Genus **VEKUNTA** Distant

**Vekunta lineata** Melichar.

*Vekunta lineata* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 270

This species is known to me only from the original description.

**Vekunta palawanensis** sp. nov.

*Female.*—Light reddish yellow or brown, head and pronotum lighter than mesonotum, darker mark on pleura, dorsum of abdomen darker brown. Tegmina hyaline, opaque with waxy

secretion, yellowish, veins darker; wings fuscous with darker veins, opaque with waxy secretion.

Pregenital sternite short at sides, median third of posterior edge produced into lanceolate process reaching a third from apex of styles; anal segment short, broadly lanceolate, not reaching to apex of genital styles, anus in middle.

Length, 2.5 millimeters; tegmen, 4.

PALAWAN, Puerto Princesa (*Baker*).

## Genus LAMENIA Stål

### Lamenia albicosta sp. nov.

*Female.*—Vertex slightly longer than wide, subantennal process forming a semicircular plate. Dark fuscous brown or black; antennæ, subantennal plate, clypeus, rostrum, and a broad posterior margin on pronotum yellow; legs and abdominal sternites light brown, front femora and bands on front tibiæ fuscous. Basal half of tegmina fuscous, apical half fuscous on veins extending into cells, a white band along costa widening at end of costal cell.

Pregenital sternite with median third of posterior edge slightly produced, apex of production truncate.

Length, 2.75 millimeters; tegmen, 5.

LUZON, Tayabas, Mount Banahao (*Baker*).

### Lamenia bakeri sp. nov.

*Male.*—Dark shining brown or black, antennæ, legs, and base of abdomen lighter, first and second tibiæ with fuscous bands. Tegmina dark, shining brown or black, a long yellowish spot on costa at end of costal cell with a dark spot in the middle of it.

Ventral edge of pygophor straight, lateral edges angularly produced; anal segment large, length about three times the width, anus in basal third, sides subparallel to about middle then gradually converging to the obtusely pointed apex, in lateral view ventral edge straight; genital style long, narrow, curved upward, sides straight on basal half then gradually narrowing to the acutely pointed apex; a small, sharp spine arises from the inner surface near the base.

Length, 3 millimeters; tegmen, 4.

*Female.*—Similar to the male in color and size. Posterior edge of the pregenital sternite slightly produced from sides to middle third, which is produced into a subconical process with an obtuse apex and a slightly constricted base and with its disk raised into a small round knob.

MINDANAO, Davao (*Baker*).

**Lamenia philippina** sp. nov.

*Male.*—Dark shining brown, lighter over legs and ventral surface. Tegmina dark shining brown with a small light dot at the apex of costal cell.

Ventral edge of pygophor straight, lateral edges slightly rounded; anal segment long and narrow, length nearly four times the width, anus about one third from base, sides subparallel on basal half, gradually converging to apex, which is curved ventrad; a deep, narrow cleft from apex halfway to anus; genital styles long and narrow, the apices acute and curved upward; a sharp spine arises from the inner surface near base.

Length, 2.7 millimeters; tegmen, 4.

Female unknown.

MINDANAO, Davao (*Baker*).

**Lamenia flavescens** Melichar.

*Lamenia flavescens* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 179.

Placed by its author with *Nisia,* in the Achilinæ. Specimens from the type locality that I identify as this species have the following genital characters:

*Male.*—Ventral edge of pygophor straight, lateral edges angularly produced; length of anal segment a little more than twice the width, anus in middle, sides parallel to middle, then gradually converging to the bluntly pointed apex; genital style long and narrow, slightly constricted just before the subtruncate apex; otherwise the edges subparallel, a quadrate process wider than high arises from the inner surface near base.

*Female.*—The posterior edge of the pregenital sternite slightly produced on lateral third, but steeply so on the median third, the production longer than broad at base, with rounded apex; sternite, including the production, longer than broad.

MINDANAO, Davao (*Baker*), one male, which agrees with the Maquiling specimens; Laguna, Los Baños (*Banks*), College of Agriculture, No. 18116.

**Lamenia pseudotypicus** (Muir).

*Thyrocephalus pseudotypicus* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 40.

Two specimens from Mindanao—one from Davao and the other from Zamboanga (*Baker*)—appear to be this species, previously known from Borneo.

MINDANAO, Zamboanga and Davao (*Baker*).

**Lamenia croceus** (Muir).

*Thyrocephalus croceus* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 39.

One pair from Mindanao, Davaó (*Baker*), which I provisionally place under this species. In color and size it is similar to the following species (*L. pallidinervis*) from which it differs in the shape of its genitalia.

Ventral edge of pygophor straight, lateral edges obtuse-angularly produced, length of anal segment not quite thrice the width, sides subparallel, apex rounded, lateral edges near apex turned ventrad in the shape of an obtuse angle with acute apex, genital styles long and narrow, edges subparallel to near the rounded apex, apical portion curved slightly dorsad, two small knobs arise from middle of inner surface near base, one of which is studded with minute spines.

MINDANAO, Davao (*Baker*).

**Lamenia pallidinervis** sp. nov.

*Male.*—Reddish yellow, carinæ of face, labium, tarsi, and dorsum of abdomen slightly fuscous. Tegmina hyaline tinged with yellow, veins lighter.

Ventral edge of pygophor straight, lateral edge angularly produced, which is subacute and longer than the width at base; anal segment long and narrow, length slightly less than thrice the width, sides parallel to near the rounded apex, anus a little basad of the middle, in profile the ventral edge entire; genital styles long and narrow, gradually narrowing to the acute apex, which is turned dorsad and inward; edges entire, a stout, acute spine arises from the middle of the inner surface, and a small round knob near the base.

Length, 2.5 millimeters; tegmen, 4.3.

*Female.*—Similar in color and size to the male. Pregenital sternite triangular, the sides sinuous.

MINDANAO, Zamboanga (*Baker*).

## Genus **NEOLAMENIA** novum

This genus differs from *Lamenia* in having the second antennal joint as long as the face, broad, slightly flattened, sides subparallel, apex truncate, subantennal plate forming a narrow ledge below antenna; the basal half of clypeus forming an oblong disk, slightly depressed mediolongitudinally, the lateral

carinæ curved, forming the sides of the disk, median carina confined to apical half of clypeus.

**Neolamenia flava** sp. nov. Plate I, fig. 7.

*Male.*—Fuscous yellow, front coxæ, mesonotum, and dorsum of abdomen darker fuscous. Tegmina fuscous yellow, opaque with waxy secretion, veins darker, infuscation greater along apical margin; wings white, opaque with waxy secretion, veins brown.

Posterior edge of pygophor straight, anal segment much longer than broad, apex bluntly conical, turned downward, with minute emargination at apex; styles as long as anal segment, subparallel-sided, apex bluntly pointed, turned inward, ventral edge slightly sinuous, dorsal edge having a small pointed process a third from apex.

Length, 3 millimeters; tegmen, 4.5.

LUZON, Laguna, Mount Maquiling (*Muir*); BASILAN (*Baker*).

## OTIOCERINÆ

### Genus **PYRRHONEURA** Kirkaldy

**Pyrrhoneura maculata** sp. nov.

*Male.*—Lateral carinæ of face parallel. Light yellow, fuscous on abdomen; a black spot on carinæ of face in front of eyes, a spot on lateral margins of pronotum and a small one on lateral angles of mesonotum. Tegmina white, opaque with waxy secretion; veins white; a series of black dots as follows: Some five or six along costal cell, two in clavus, two on base of cubitus, one on apex of cubitus, one on base of first median sector, a larger one over middle of first and second sectors, first four and last three apical cells fuscous, fuscous clouding in apex of subcostal cell and at base of fourth sector; wings white with white veins.

Ventral and lateral edges of pygophor straight; anal segment long, narrow, parallel-sided, apex turned ventrad, truncate, anus near apex; genital styles long, narrow, apex bluntly pointed, turned inward, ventral edge nearly straight, dorsal edge with two rounded projections, or teeth, about middle.

*Female.*—Pregenital sternite wider than long, in lateral view slightly concave in middle, hind edge evenly produced to middle, slightly emarginate in middle, a fine, longitudinal groove from apex to near middle.

Length, 2 millimeters; tegmen, 3.5.

LUZON, Tayabas, Mount Banahao (*Muir*), cotype in College of Agriculture, No. 18123, on young coconut palms.

## Genus **PHANTASMATOCERA** Kirkaldy

**Phantasmatocera fuscofasciata sp. nov.**

*Male.*—Head similar to that of *Swezeyia laratica.*[4] Yellow; facial carinæ tinged with brown, a fuscous mark on lateral edges of pronotum, which extends across corners of mesonotum and to tip of tegmina. Tegmina hyaline, opaque with waxy secretion, veins white, a fuscous mark extending from base along clavus to median cross vein, then along media to apical cross veins; wings hyaline, opaque with waxy secretion, veins light yellow.

Ventral edge of pygophor straight, lateral edges slightly and roundly produced; anal segment long, narrow, sides straight, slightly narrowing to apex; apex broad, rounded, and turned ventrad, anus at apex; styles reaching a little beyond apex of anal segment, narrow, slightly curved upward at apex, rounded, turned inward, styles slightly compressed longitudinally, a carina running from apex to base on outer surface, ventral edge entire, dorsal edge notched near apex.

*Female.*—Shape of head as in *P. vitiensis* Kirkaldy.[5] Light yellow; vertex and face above eyes white; a fuscous mark from face to front of eye and from back of eye to base of tegmen, along the middle of which it is continued to apex. Tegmina yellowish, opaque with waxy secretion; the fuscous mark proceeds from base of clavus along cubitus to mediam cross vein then along media to apex; wings opaquely white, veins white.

Pregenital segment broader than long, posterior edge produced angularly from sides to middle, apex turned dorsad and depressed longitudinally so that from a ventral view it gives the apex of produced part the appearance of being angularly emarginate.

Length, 2.5 millimeters; tegmen, 3.6.

LUZON, Laguna, Los Baños and Mount Maquiling (*Muir, Baker, Banks*), cotype in College of Agriculture, No. 18122, females much more numerous than males; MINDANAO, Butuan, Davao (*Baker*).

[4] *Swezeyia laratica Muir*, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 50, from Larat, is likely to be more correctly placed in *Phantasmatocera.*

[5] *Bull. Hawaiian Sugar Plant. Assoc., Div. Ent.* (1906), 1, 431 (Fiji), (1907), 3, 177.

## Genus **DENDROKARA** Melichar

*Dendrokara* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 272.

**Dendrokara monstrosa** Melichar.

*Dendrokara monstrosa* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 272.

LUZON, Laguna, Mount Maquiling and Paete (*Baker*); MINDANAO, Butuan (*Baker*).

**Dendrokara torva** Melichar.

*Dendrokara torva* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 273.

MINDANAO, Lanao, Kolambugan (*Banks*), College of Agriculture No. 18104.

## Genus **NEODENDROKARA** novum

This genus is differentiated from *Dendrokara* by the presence of a well-developed subantennal plate and of moderately developed shoulder keels. It approaches *Nesokaha,* but the long basal joint of antenna places it near *Patara,* a genus of which I have not seen a specimen.

**Neodendrokara crescentiformis** sp. nov. Plate I, fig. 8.

*Male.*—In profile, head oblong, longer than wide, no angle at junction of vertex and face; vertex acutely angular, base keelless, sides with high keels, face narrow, keels contiguous to apex; semicircular with slight antennal emargination on the ventral margin; antennæ with first joint longer than wide; large second joint crescent-shaped, gradually thickened toward apex, which thick end is hollowed, second joint attached by its middle to the basal joint, large sense organs scattered over the whole surface; clypeus narrow, shorter than face, and laterally compressed, lateral carinæ distinct, median indistinct; pronotum short, angularly emarginate behind, shoulder keels moderately developed; mesonotum longer than wide, lateral angles about middle, indistinctly tricarinate. Tegmina very similar to those of *Dendrokara torva.* Yellow, keels of face and sense organs on antennæ reddish; tegmina yellow with yellow veins; cubitus, median sectors, and apex of media tinged with red.

Ventral and lateral edges of pygophor straight; anal segment narrow, long, tectiform; anus near apex, beyond which apex turned ventrad, roundly emarginate (forming a spine at each apical corner); genital styles narrow, reaching to end of anal

segment; dorsal edge entire, slightly curved dorsad, ventral edge produced at about middle, apex blunt, turned slightly inward.

Length, 3 millimeters; tegmen, 5.5.

LUZON, Tayabas, Mount Banahao (*Baker*).

## Genus NESOKAHA Muir

**Nesokaha lineata** Muir.

*Nesokaha lineata* MUIR, Proc. Hawaiian Ent. Soc. (1915), 3, 120.

*Male.*—Ventral edge of pygophor straight; lateral edges obtuse-angularly produced; anal segment long, narrow, subparallel-sided, apex truncate, turned ventrad, anus at apex; genital styles narrow, reaching end of anal segment; apex bluntly pointed, turned inward.

This species was originally described from a female.

LUZON, Tayabas, Mount Banahao (*Muir*), on young coconut palms.

**Nesokaha philippina** Muir.

*Nesokaha philippina* MUIR, Proc. Hawaiian Ent. Soc. (1915), 3, 119.

LUZON, Mount Banahao (*Muir*), one female on a coconut palm.

**Nesokaha rubrinervis** sp. nov.

*Male.*—Clypeus, face, vertex, thoracic nota, and abdomen dark reddish fuscous; antennæ, subantennal plates, thoracic sternites, and legs yellow; a fuscous mark between first and second coxæ. Tegmina dark reddish fuscous, veins red, costa and apical veins lightest, subcostal apical cell slightly hyaline; wings dark fuscous, veins reddish.

Ventral edge of pygophor straight, lateral edges very slightly arcuate, anal segment longer than wide, sides slightly arcuate, apex roundly emarginate, anus at apex; styles narrow, reaching end of anal segment; apex subtruncate, turned slightly dorsad; a faint carina runs longitudinally along outer surface and is produced at apex into a small point.

*Female.*—Pregenital sternite convex, posterior edge obtusely produced to middle, a narrow emargination from apex of production to middle of sternite.

Length, 2 millimeters; tegmen, 3.5.

LUZON, Tayabas, Mount Banahao (*Muir*), on young coconut palms.

**Nesokaha nigropunctata** sp. nov.

*Male.*—Carinæ of face contiguous. Yellow; head and pronotum lighter, dorsum of abdomen fuscous, tegulæ black.

Tegmina light yellow, opaque with waxy secretion, veins on basal half yellowish, on apical half reddish, especially media and median sectors; a large, round, black spot at apex over fourth median sector, dark fuscous over basal half of costal cell, shading off into subcostal cell, dark fuscous over hind edge of clavus; wings fuscous, veins dark.

Ventral edge of pygophor straight, lateral edges slightly arcuate; anal segment longer than width at base, slightly narrowing toward apex, which is roundly emarginate, anus just before apex; genital styles reaching to end of anal segment, narrow, curved slightly dorsad, apex rounded, a small angular projection about middle on inner surface.

Length, 2.3 millimeters; tegmen, 4.

LUZON, Laguna, Los Baños (*Baker*).

## Genus KAHA Kirkaldy

*Kaha* KIRKALDY, Ent. Bull. Hawaiian Sugar Plant. Assoc. (1906), 1, 433. (Feb. 3.)

*Devadanda* DISTANT, Fauna Brit. Ind., Rhyn. (1906), 3, 315.

Kirkaldy's work above quoted bears the date of publication, February 3. The exact date of publication of Distant's work I do not know, as the volume only bears the date of 1906, the introduction being dated February, 1906. It is highly probable that the publication of *Kaha* antedates that of *Devadanda*, because the introduction to Distant's work must have been written at least several days before the day of publication.

*Devadanda* differs from *Kaha* in the shape of the antennæ, a character which cannot be taken as of generic importance, as there is much specific and sexual difference in this group. The former genus was founded upon a single specimen, the sex of which is not mentioned, but it is probably a male; I do not think the description of the antennæ is morphologically correct, as the condition described is not found in the Derbidæ or in the Fulgoroidea.

*Nesokaha* differs from *Kaha* in having the vertex and face, in profile, forming a continuous curve or with only a small angulation at the junction of vertex and face, the face not prolonged in front; the antennæ are simple in both sexes. It is possible that the two genera will have to be united.

### Kaha flava sp. nov.

*Female.*—Yellowish; vertex and basal portion of face transparent, apically fuscous red, darkest between eye and middle of face; clypeus and lateral portions of pro- and mesonotum

fuscous; front and middle femora fuscous; abdomen reddish. Tegmina hyaline, semiopaque with waxy secretion, basal half light yellow, apical half fuscous, darkest in apical cells, a small black mark at base of costal cell, four fuscous marks across apical half of costal cell, a dark mark over cross vein at base of last median sector; veins yellowish on basal half, reddish, bordered with yellowish, in fuscous apical half; wings slightly fuscous with darker veins. Ventral edge of pregenital sternite produced angularly from sides to middle; anal segment small, anus at apex; a pair of short processes with a couple of hairs on apex of each arises from near apex on the ventral margin.

In profile the head of this species is not produced so far as in *K. media* Muir and is more conical; antennæ as in *media*.

Length, 2.25 millimeters; tegmen, 4.25.

LUZON, Laguna, Los Baños (*Muir*).

A damaged female from Mindanao, Butuan (*Baker*), is similar to this species.

**Kaha pseudomedia** sp. nov.

*Male.*—Head and antennæ as in *Kaha leefmanii* Muir. Dark shiny brown, tinged with red. In lateral view the vertex, basal portion of face, and a small angular mark in middle of face (most distal portion of head) white, rest of head brown, darkest around eye; subantennal plate and shoulder keel light; median carina of pro- and mesonotum lighter; legs light. Tegmina dark fuscous; four small, angular, white marks in apical portion of costal cell, the distal three being crossed by the red transcostal veins; two semihyaline patches in basal median cell, another in clavus, veins reddish, apical ones brightest; wings light fuscous, veins brown, a dark mark on the cross vein which arises from fourth median sector.

Ventral edge of pygophor straight, lateral edges slightly and roundly produced; anal segment long, narrow, subparallel-sided, bent ventrad at a right angle a little distad of middle; anus just distad of bend, apex truncate with a minute spine at each corner, straight basal portion sloping from middle to sides; styles long, narrow, apices rounded and turned dorsad, ventral edge subangularly produced before middle, dorsal edge produced into a small process about middle, basal portion of process round, with small hairs, distal portion produced into a small spine.

*Female.*—Posterior edge of pregenital sternite angularly produced from sides to middle, disk subconically produced in

middle, in side view the projection gradually rises from base to apex, then suddenly falls; anal segment small, anus at apex, apex produced into two small projections.

Length, 2.25 millimeters; tegmen, 3.5.

LUZON, Laguna, Mount Maquiling (*Baker, Muir*); MINDANAO, Davao (*Baker*); BASILAN (*Baker*).

There is one male specimen with a short, straight, anal segment that may represent a different species or may be an abnormal individual.

**Kaha angulata** sp. nov.

*Male.*—In profile the projecting face is acutely angular, whereas in *Kaha media* Muir it is more quadrate; antennæ with long "scales," but not so conspicuous as in *K. pseudomedia.* Dark shiny brown; viewed in profile, the genæ appear hyaline along basal half; a small hyaline spot beneath eye; legs lighter. Tegmina dark, a lighter spot across middle of costal cell; veins dark, reddish; apical and transcostal veins lighter red, a small dark mark over cross vein arising from fourth median sector; wings fuscous, veins dark.

Ventral edge of pygophor straight, lateral edges slightly and arcuately produced; anal segment broad and fairly short, sloping from middle to sides, in lateral view the sides excavated just before the rounded apex, anus at apex; style long and slender, apex rounded and turned slightly dorsad, projection on ventral edge more angular than in *K. pseudomedia,* that on dorsal edge angular with spine on apex.

Length, 1.75 millimeters; tegmen, 3.

*Female.*—Face not produced so greatly as in the male; viewed in profile, the produced face appears to be curved, thus approaching the genus *Nesokaha;* antennæ with lower portion of second segment slightly produced and bearing "scales." Dark shining brown, a thin, hyaline streak along vertex and base of genæ; legs pale yellow. Tegmina and wings as in the male.

Pregenital sternite angularly produced from sides to middle, disk near apex of production, produced into a low, conical process.

Length, 2 millimeters; tegmina, 3.5.

MINDANAO, Butuan (*Baker*), Davao (*Baker*); LUZON, Mount Banahao and Mount Maquiling (*Muir*).

Allied to these new species of *Kaha,* there are several species of which the genitalia unfortunately have not been described, so that there will be some uncertainty until I can compare the types.

## Genus EOSACCHARISSA Kirkaldy

**Eosaccharissa philippina sp. nov.**

*Male.*—Yellow; a fuscous spot on face in front of eye, fuscous on abdominal tergites. Tegmina hyaline, slightly opaque with waxy secretion, a faint fuscous spot in middle of costa, two at apex of radius, a more distinct spot at end of clavus, a faint yellow mark from end of clavus across base of radius to costa, slightly yellowish at base and over apical cross veins; wings hyaline, veins light.

Ventral edge of pygophor at middle produced into a square plate, the corners rounded, the dorsal surface with a median depression in which the ædeagus lies; lateral edges very slightly rounded; anal segment large, basal half slightly wider than long, sides slightly arcuate, bent ventrad second half much narrower, at right angles to basal half, apex roundly emarginate, anus at apex of first half; genital styles semispatulate, base narrow, dorsal edge slightly curved dorsad, ventral edge roundly produced on apical half, apex pointed, turned inward, a small spine about middle of inner surface.

Length, 3.6 millimeters; tegmen, 4.5.

MINDANAO, Butuan (*Baker*).

**Eosaccharissa pulchra sp. nov.**

*Female.*—The apical half of face is less rounded than in the type species. Light yellow; carinæ on lower half of face black with a black mark across face to base of eye, genital styles fuscous. Tegmina white, veins white, five fine brown hair streaks from costa, one through middle of costal cell, two at apex, and two smaller a little beyond; a broader black mark from apex of media to apical cross vein, a small dark mark at end of clavus; yellowish along side of hair streaks, over cubitus and apex of median sector; wings white with white veins. Tegmina and wings opaque with waxy secretion.

Pregenital sternite produced in middle on posterior edge into a flat, conical process, length about twice the width at base.

Length, 2.5 millimeters; tegmen, 4.

LUZON, Tayabas, Mount Banahao (*Muir*), on young coconut palms; Laguna, Los Baños (*Muir*), cotype in College of Agriculture, No. 18121.

**Eosaccharissa fusca sp. nov.**

This species differs from the type in having the face in lateral view more conical in the middle, the costal cell broader, and the costal margin more arcuate. Yellowish; a mark across face

to eye, front and middle tarsi, marks on femora and tibiæ, and abdominal tergites fuscous. Tegmina fuscous, hyaline in costal cell, clavus, and apical cells; two small black specks in median apical cells, veins dark, tinged with red; wings fuscous, veins dark.

Medioventral edge of pygophor produced into a long, acutely angular process; lateral edges straight; anal segment long and narrow, parallel-sided, anus just before apex, apex narrowly rounded and turned slightly ventrad; styles long, narrow on basal two thirds, apical third rounded.

Length, 3.6 millimeters; tegmen, 4.

LUZON, Laguna, Los Baños (*Muir*), Mount Maquiling (*Baker*).

The two specimens I have of this species are heavily covered with white, waxy secretion on tegmina and head.

## Genus **KAMENDAKA** Distant

**Kamendaka mindanensis** sp. nov.

*Male.*—Vertex ascending, angulation of vertex with face acute, face narrow, but carinæ not contiguous.

Stramineous; dorsum of abdomen and facial carinæ fuscous. Tegmina hyaline variegated with stramineous and clear hyaline markings, the clear portions being the apex of clavus, the basal portion of cubital cell, the costal cell with the exception of three marks, one at base, one in middle, and one at apex, base and near apex of radial cell, three spots around base of first median sector, the third median cell, and some of the apical cells; the stramineous markings sometimes edged with fuscous; radioapical and first, second, fourth, and fifth medioapical cells fuscous; veins stramineous in colored portion and white in clear portion.

Medioventral edge of pygophor produced into a process broader than long, the lateral edges arcuate and the apex truncate, the lateral edges turned dorsad and forming a canal in which the base of the ædeagus lies; anal segment narrow, sides subparallel, length more than twice the width, anus slightly before apex, segment narrows slightly beyond anus, apex broadly rounded; genital styles reaching to end of anal segment, curved dorsad, narrow at base, dorsal edge straight, entire, ventral edge arcuately ampliate on apical half, a small conical projection from ventral edge near middle, a small, stout spine with a curved apex about the middle of the inner surface of dorsal edge; ædeagus shown in fig. 1.

Length, 2 millimeters; tegmen, 3.5.

*Female.*—Similar to the male. Posterior edge of pregenital sternite roundly produced from sides to middle.

MINDANAO, Davao (*Baker*); Lanao, Kolambugan (*Banks*), cotype in College of Agriculture, No. 18105.

FIG. 1. *Kamendaka mindanensis* sp. nov., ædeagus.

This and the three following species are similar in structure and color to *K. versicolor* Muir from Amboina, and they cannot be separated from each other except by the structure of the male genitalia.

**Kamendaka luzonensis** sp. nov.

*Male.*—Differs from *K. mindanensis* Muir in having the apex of anal segment not so narrow, the genital styles narrow at base, apical half slightly wider with subparallel edges, apex subtruncate, a small, rounded projection on ventral edge near middle, a stout spine with curved apex on dorsal edge near middle; ædeagus shown in fig. 2.

FIG. 2. *Kamendaka luzonensis* sp. nov., ædeagus.

LUZON, Laguna, Mount Maquiling (*Baker, Muir*).

**Kamendaka tayabasensis** sp. nov.

*Male.*—Anal segment caudad of anus obtusely pointed; genital styles narrow, apical half but slightly broader than basal half, apex subacute; ædeagus very distinct (fig. 3).

LUZON, Laguna, Mount Maquiling (*Baker*).

FIG. 3. *Kamendaka tayabasensis* sp. nov., ædeagus.

**Kamendaka maquilingensis** sp. nov.

*Male.*—Apex of anal segment round; genital styles long, very narrow, curved, slightly widened on apical fourth, apex subangular, a small process like a Phrygian cap about one third from base of the ventral edge, a curved spine in about the same position on the dorsal edge; ædeagus shown in fig. 4.

FIG. 4. *Kamendaka maquilingensis* sp. nov., ædeagus.

LUZON, Laguna, Mount Maquiling (*Muir*).

**Kamendaka flava** sp. nov.

*Female.*—The vertex in profile ascending, acutely angular at junction of face and vertex, carinæ of face near together at

base, but not contiguous. Yellow; tegmina semiopaque, yellowish, veins yellowish, four small black spots on apical margin of apical median cells.

Pregenital sternite very short at sides, hind margin steeply produced to middle, apex of production broadly pointed, sides slightly concave.

Length, 2.25 millimeters; tegmen, 3.5.

LUZON, Laguna, Mount Maquiling (*Baker*).

**Kamendaka incommoda** sp. nov.

In profile, vertex not so steeply ascending as in *K. flava* and face more strongly curved, thus approaching *Eosaccharissa* Kirk.

*Male.*—Dirty yellow, dark mark from middle of face to eye and from back of eye over posterior corners of vertex, light brown mark down middle of anterior half of mesonotum, fuscous over dorsum of abdomen; a black mark near base of hind tibiæ. Tegmina hyaline, slightly fuscous over base and darker over posterior area to second median sector; a few faint spots in costal cell, one at base of media and one in middle of cubitus; veins yellowish with slight infuscation along the sides.

Medioventral edge of pygophor produced into a square plate with rounded corners and a median, longitudinal depression on the dorsal surface; anal segment little longer than its width at base, sides curved gradually to a point, anus median; over the anus a small conical plate, in lateral view, the segment sinuous; genital styles narrow at base, gradually widening to apex, which is subtruncate and diagonal.

*Female.*—A little darker in color than male. Pregenital sternite produced angularly from sides to middle.

Length, 2 millimeters; tegmen, 4.

LUZON, Laguna, Mount Maquiling (*Baker*).

## Genus **NICERTA** Walker

**Nicerta palawanensis** sp. nov.

*Female.*—Congeneric with *Nicerta cruenta* Muir; antennæ slightly flattened.

Yellowish; antennæ fuscous, a small red streak from base of face to eye. Tegmina white, tinged with yellow; a series of red spots down the middle, first near base of media, another at forking of cubitus, a series through median cells to apex; wings white with white veins.

Posterior edge of pregenital sternite evenly and roundly produced from sides.

Length, 3.6 millimeters; tegmen, 5.5.

PALAWAN, Puerto Princesa (*Baker*).

## Genus MEGATROPIS Muir

**Megatropis obliquefasciata** Melichar.

In the females of this species that I have examined, the second antennal joint has little or no trace of the prong at its base. The oblique line is sometimes represented by only a dark mark at end of clavus and another on radius.

LUZON, Laguna, Mount Maquiling (*Baker*), College of Agriculture No. 18124.

**Megatropis immaculata** Muir.

*Megatropis immaculata* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 58.

MINDANAO, Butuan and Zamboanga (*Baker*); BASILAN (*Baker*). Previously known from Amboina and Borneo from females only; it is possible that *M. flexicornis* Muir is the male of *M. immaculata.*

In Philippine specimens the second antennal joint of the male varies from the horseshoe form of *M. flexicornis* Muir to the *M. pallida* Muir type with a short prong; in the female there is no prong, as in *M. coccineolinea* Muir.

**Megatropis sanguinea** sp. nov.

*Male.*—Head slightly narrower than in the type species, thereby approaching *Nicerta;* second joint of antennæ with a small knoblike prong at base; gena wide in front of eye, as in *M. rubella* Muir; the shape of eye approaches that of *Leptaleocera.* Head, thorax, and abdomen yellowish, heavily tinged with red, which is darkest on dorsal surface, abdomen infuscate. Tegmina deep scarlet, veins darker; wings fuscous with dark veins.

Ventral edge of pygophor straight, sides slightly arcuate; length of anal segment twice the width, sides slightly arcuate, apex rounded, anus in basal half; styles reaching apex of anal segment, narrow, dorsal edge entire, slightly curved, apex rounded, ventral edge produced into a triangular process in middle.

Length, 4 millimeters; tegmen, 6.

*Female.*—Second antennal joint without a knob or prong at base. Yellow tinged with red. Tegmina yellowish tinged with red; wings fuscous, veins darker.

Pregenital sternite with posterior edge produced into a wide, rounded process.

Length, 4.5 millimeters; tegmen, 6.5.

MINDANAO, Butuan (*Baker*).

In spite of the difference in color of the male and female as here described, I feel sure that they are of the same species.

**Megatropis interruptolineata** Melichar.

*Megatropis interruptolineata* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 271.

LUZON, Laguna, Los Baños (*Muir*), College of Agriculture No. 18125.

Genus **BANKSIELLA** novum

In profile vertex slightly excavate, ascending, angular at junction with face; face well rounded, forming a semicircle; vertex small, angular, slightly longer than width of base; lateral carinæ broad and beset with wax pits; carinæ continue onto face where they are contiguous to near apex; antennæ very small, second joint little longer than broad, arista at apex; eye small, nearly round, very slight antennal emargination on ventral edge; clypeus shorter than face, rounded, carinæ absent; pronotum short, hind edge angularly emarginate, in the middle acutely so; shoulder keels fairly well developed; mesonotum a little longer than wide, tricarinate, the lateral angles slightly behind middle, posterior angle acute; hind tibiæ with a minute spine at base and a few small spines at apex. Tegmina with basal half of costa sinuous, then angularly emarginate, beyond which it is shallowly and arcuately emarginate, apex rounded, broad; precostal area confined to basal fifth, costal vein curved, subcosta and radius amalgamated to near apex, media parting from radius near base, first sector in apical third, cubitus forking beyond middle, second cubital cell closed; apex of clavus a little beyond middle of tegmen.

This strange little insect is very aberrant; by the closing of the second cubital cell and by the median sectors being confined to the apical third it falls into the *Nicerta* group, I should think somewhere near *Robigus*.

**Banksiella pulchra** sp. nov. Plate I, figs. 6 and 15.

*Female.*—Vertex and basal portion of face whitish, apical portion of face fuscous with two light marks passing over it; antennæ, clypeus, and thorax brown, lighter over carinæ and in middle of pronotum; femora fuscous; abdomen yellowish, fuscous at apex. Costal cell hyaline, basal fourth of tegmen light brown, darkest along the apical edge of this area, a triangular yellowish patch across tegmen, with its base on hind margin; the rest of the tegmen light reddish brown, except the apex,

which is yellowish, a series of lighter marks across costal cell; veins in apical half reddish, partly bordered with fuscous.

Length, 3 millimeters; tegmen, 4.5.

MINDANAO, Lanao, Kolambugan (*Banks*).

## Genus LEPTALEOCERA Muir

**Leptaleocera nigrofasciata** sp. nov.

*Male.*—Second antennal joint only slightly flattened, nearly as long as head and thorax together, otherwise typical. The subcostal cell is shorter in *Leptaleocera* than in *Megatropis*.

Yellow; eyes, a small spot on each corner of mesonotum, and a line from base of clavus to apex of media black or fuscous brown; tegmen otherwise light yellow with light veins; wings white with whitish veins.

Posterior edge of pygophor entire; length of anal segment twice the width, sides straight, apex wider than base, very shallowly emarginate, apical corners with a minute spine, anus at about the middle; styles reaching to end of anal segment and of medium width; apex pointed and turned inward, with two small elevations on inner surface near apex.

Length, 4 millimeters; tegmen, 6.3.

LUZON, Mount Maquiling and Malinao (*Baker*).

**Leptaleocera bakeri** Melichar.

*Leptaleocera bakeri* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 271.

The antennæ reach beyond the apex of head; they are large and flat. Ventral edge of pygophor straight; length of anal segment twice the width, parallel-sided, anus in middle, apex roundly emarginate; genital styles reaching to apex of anal segment, lanceolate, with apex turned inward.

MINDANAO, Lanao, Kolambugan (*Banks*), a male specimen, College of Agriculture No. 18106.

**Leptaleocera banksi** sp. nov.

*Male.*—This species differs from the typical form in having the antennæ subcylindrical and constricted in the middle; the second cubital cell is closed by the cubital veins. Hind tibiæ broadened toward apex; hind tarsi short and broad, first tarsal joint about as broad as long, flattened. Scarlet, tibiæ yellowish, abdominal tergites slightly fuscous.

Ventral edge of pygophor straight; lateral edges slightly arcuate; anal segment considerably longer than broad, lanceolate, base broad, anus in middle, apex slightly curved ventrad; genital

styles reaching to end of anal segment, subparallel-sided to near apex, then narrowing to the pointed apex, which is turned inward; ventral edge entire, a small, round process on dorsal edge near apex.

Length, 3.6 millimeters; tegmen, 4.

MINDANAO, Lanao, Kolambugan (*Banks*), type, No. 18103, College of Agriculture; BASILAN (*Baker*).

This species is provisionally placed in *Leptaleocera*.

Genus **HERONAX** Kirkaldy

**Heronax maculipennis** (Melichar).

*Fenuahala maculipennis* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 436.

*Male*.—Ventral edge of pygophor produced very slightly and squarely at middle; from the inside of pygophor at the base of each style arises a curved spine, flat and broad at base and curved outward; lateral edges very slightly and angularly produced; anal segment long and with anus near base, widening suddenly from base to anus, then suddenly narrowing, the apex forming a long process which is turned downward and bifurcate at apex; genital styles spatulate, notched along lower edge; ædeagus large and complex.

*Female*.—Pregenital sternite angularly produced on hind margin, apex turned dorsad; anal segment very small, apex rounded.

LUZON, Tayabas, Lucena (*Banks*), Bureau of Science No. 18016; bred from nymphs taken from rotten stumps of buri palm, *Corypha elata* Roxb.

Genus **MYSIDIOIDES** Matsumura

**Mysidioides tagalica** sp. nov.

*Male*.—Head not angular at junction of vertex and face; antennæ flattened; media separating from radius at first sector. Fuscous yellow; darker over clypeus, face, lateral portions of pro- and mesonotum, and abdominal tergites. Tegmina hyaline, slightly fuscous, semiopaque with waxy secretion; darker infuscation in bands across costal cell, base of subcostal cell, along cubitus, over greater area of median cells, and in apical cells; veins fuscous in fuscous areas, yellow in hyaline areas, reddish along costa and on apical radial nerves; wings lightly fuscous with brown veins.

Ventral edge of pygophor straight, without spines on the inner median surface; lateral edge produced into a very small, angular projection; anal segment large, basal half straight,

subparallel-sided, anus in middle, apical half composed of two long spines at right angles to basal half; genital styles reaching beyond anal segment, somewhat spatulate, dorsal edge curved dorsad, ending in a strong spine, which is turned inward, ventral edge arcuately produced on apical half, notched about the middle, basad of the notch with two small, round projections on inner surface; ædeagus large and complex.

Length, 3.6 millimeters; tegmen, 5.

*Female.*—Similar to the male, but larger and the infuscation much darker. Antennæ club-shaped. The pregenital sternite is longer than broad, flattened or even slightly concave, posterior edge obtusely, angularly produced.

LUZON, Laguna, Mount Maquiling (*Muir*), on bird's-nest fern; Tayabas, Mount Banahao (*Muir*).

Unfortunately the genitalia of *Mysidioides sordidum* (Muir) and *M. borneensis* (Muir) are not described, and I am not in a position to compare them with this species, but the coloration differs somewhat. The Banahao specimen is much darker and the red on the veins is much plainer.

I have other species, represented by females only, which I refrain from naming.

## DERBINÆ

### Genus ZEUGMA Westwood

Zeugma valdezi sp. nov.

*Zeugma vittata* MELICHAR, MS. (not of Westwood).

Width of vertex and face as in *Zeugma javana* Muir, narrower than in *Z. vittata* (Westwood).

Brown or reddish brown; a dark longitudinal mark passing over vertex, face, and clypeus; five dark marks on mesonotum, the outer ones faint; abdomen darker; faint fuscous bands on first and second tibiæ. Tegmina very light fuscous or reddish yellow, darker along veins, veins reddish brown, darker fuscous in subcostal cell, over apex of radius, and on apical cross veins, lighter areas around infuscated apical cross veins, in middle of median sectors, and over base of radial cell; wings fuscous, reaching a little beyond middle of tegmina, veins brown.

Ventral edge of pygophor produced into a short, wide process at middle, the apex widely and angularly emarginate; lateral edges produced into wide angular plates, the ventral edge of projection obtusely, angularly produced in middle; anal segment a little longer than lateral plates, longer than broad, widest near apex, which is round with a slight angular emargination, making

it subcordate in outline, the lateral edges turned ventrad, anus in middle; genital styles much longer than anal segment, gradually widening from base to middle then narrowing to the apex, which is produced as a long, fine point, apical third turned dorsad and inward.

*Female.*—Like the male. Pregenital sternite angularly produced on hind margin, apex of projection turned dorsad; a slight depression across middle of sternite.

Length, 5 millimeters; tegmen, 10.

LUZON, Laguna, Mount Maquiling; MINDANAO, Davao and Butuan (*Baker*).

I name this species for Julian Valdez, Professor Baker's Cuban collector.

## Genus ZORAIDA Kirkaldy

*Thracia* WESTWOOD, Trans. Linn. Soc. (1842), 19, 10.
*Zoraida* KIRKALDY, Entomologist (1900), 242 n. nom.

Besides the nine species enumerated below, there are several species represented by females only, which I refrain for the present from describing.

$a^1$. Tegmina colored or maculate, more or less, all over.
  $b^1$. Tegmina fuscous all over with small white spots along the red veins. insulicola.
  $b^2$. Tegmina fuscous brown over costal, subcostal, and radial areas with fuscous spots along cubital and median veins..... maculata.
$a^2$. Tegmina not maculate or not maculate over the median and cubital area.
  $c^1$. Tegmina all clear hyaline or with the costal, subcostal, and radial areas yellowish or very light brown.
    $d^1$. Anal segment of male with apical third turned ventrad at right angle to basal two thirds, apex pointed..... javanica.
    $d^2$. Anal segment of male straight or only slightly curved ventrad.
      $e^1$. Anal segment of male long, narrow, tapering to an acute point. westwoodii.
      $e^2$. Anal segment of male not acutely pointed at apex.
        $f^1$. Anal segment of male rounded at apex, medioventral process fan-shaped ..... lutescens.
        $f^2$. Length of anal segment of male nearly twice the width, apex conical and curved slightly ventrad..... hyalina.
  $c^2$. Tegmina dark brown or dark fuscous over costal, subcostal, and radial areas, sometimes extending into median area.
    $g^1$. Costal, subcostal, and radial areas fuscous brown; dorsal surface of body brown, ventral surface yellow; anal segment of male short with rounded apex ..... flaviventris.
    $g^2$. Costal, subcostal, and radial areas brown, extending into median area at base of sectors.
      $h^1$. Anal segment of male long, narrow, apex acute..... sinuosa.
      $h^2$. Anal segment of male short, broad apex blunt..... melichari.

Zoraida insulicola Kirkaldy.

*Zoraida insulicola* KIRKALDY, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 69.

This may be *Zoraida cumulata* Walker; if so the original description makes no mention of the red veins, the white spots along veins, and the light costal margin.

LUZON, Laguna, Mount Maquiling, Los Baños (*Banks*), College of Agriculture No. 18133; MINDANAO, Davao (*Baker*).

Previously known from Amboina.

Zoraida maculata sp. nov.

Antennæ a little longer than face. Light brown, dorsum of abdomen fuscous with a lighter spot in middle, this spot and the scutellum often covered with waxy secretion. Tegmina hyaline; costal, subcostal, and radial areas brown or fuscous brown, extending to median area at bases of sectors; white spots on basal half of costal and along radial cells; subcosta, radius, and media reddish; median sectors and cubitus brown with fuscous marks along them, most distinct at apices on hind margin, four pairs of brown spots near apex, one on each side of each apical vein. Wings reaching to base of first median sector of tegmina, hyaline, veins brown.

Medioventral process of pygophor angularly lanceolate with the lateral angles near base, lateral edges of pygophor roundly produced; anal segment about the length of remainder of abdomen, narrowly lanceolate, apical fourth turned ventrad, apex narrow, shallowly emarginate, anus slightly before middle, basad of anus the dorsal surface slopes to the sides; genital styles large, reaching to apical fourth of anal segment, base narrow, apical half subquadrate, a carina proceeds from base to apex, forming the ventral edge on the basal half and the dorsal edge at apex, a round knob on ventral edge near base, the dorsal edge near middle forming an angular point.

Length, 4 millimeters; tegmen, 13.

*Female.*—Slightly darker than the male. Posterior edge of pregenital sternite slightly and roundly produced on middle half; anal segment slightly longer than wide, subturbinate, apex with a small emargination.

Length, 4 millimeters; tegmen, 10.25.

MINDANAO, Butuan (*Baker*), male, type; Davao (*Baker*), Lanao, Kolambugan (*Banks*), female, cotype in College of Agriculture, No. 18108.

147575—3

Zoraida javanica (Westwood).

*Thracia javanica* WESTWOOD, Trans. Linn. Soc. London (1842), 19; STÅL, Öfv. Vet. Akad. Förh. (1870), 27, 750.

I have seen no Philippine specimens of this species. Those so named that I have seen do not agree with my specimens from Java.

Zoraida westwoodii (Stål).

*Thracia westwoodii* STÅL, Öfv. Vet. Akad. Förh. (1870), 27, 751.

*Male.*—Ventral edge of pygophor angularly produced in middle, the apex rounded; lateral edges sinuous, roundly produced at sides of anal segment; anal segment longer than abdomen, slightly widening to anus (which is about one third from base), then gradually narrowing to a long, pointed apex, sinuous in profile; genital styles very long, narrow at base, dorsal edge roundly produced at about the middle, ventral edge sinuous, apex pointed and turned inward.

*Female.*—Pregenital sternite wider than long, posterior edge very slightly and roundly produced; anal segment about as broad as long, round, apex with a small emargination. The female is larger than the male.

There is a specimen marked *westwoodii,* Bureau of Science collection No. 5371, that is very slightly darker in color and in which the pregenital sternite is longer, the posterior edge more fully produced, and with an angular emargination in middle; the anal segment more conical in outline, and its apex not emarginate.

LUZON, Laguna, Los Baños (*Baker*).

Zoraida lutescens sp. nov.

*Male.*—Antennæ a little longer than face. Ochraceous, carinæ of mesonotum lighter, fuscous over abdominal tergites. Tegmina hyaline, light ochraceous over costal, subcostal, and radial cells, veins ochraceous. Medioventral process of pygophor wider than long, forming a wide arc slightly constricted at the corners, making it somewhat fan-shaped, lateral edges of pygophor produced into a small, acute angle; width of anal segment about twice the length, anus in middle, apex rounded, lateral edges turned ventrad, a small transverse ridge basad of anus, in profile ventral edge convex; genital styles large, narrow at base, wide on apical half, sublanceolate, on the ventral edge there are two small emarginations basad of the middle, dorsal edge sinuous basad of the middle.

Length, 3.5 millimeters; tegmen, 8.5.

*Female.*—In coloration similar to the male. Pregenital sternite wider than long, very slightly and obtuse-angularly produced from sides to middle; anal segment about as wide as long, lanceolate, acute-angularly emarginate at apex.

Length, 4 millimeters; tegmen, 8.5.

LUZON, Laguna, Los Baños (*B. R. Bautista*), cotype in College of Agriculture, No. 18326; Manila (*H. Loewinsohn*) Bureau of Science No. 15802, (*Banks*) Bureau of Science No. 14242.

**Zoraida hyalina Melichar.**

*Zoraida hyalina* MELICHAR, Notes Leyden Mus. (1913), **36**, 97.

One male agrees with Melichar's description of this Javanese species; the costal, subcostal, basal half of radial, and base of median cells slightly yellowish. A white, waxy secretion over scutellum.

Ventral edge of pygophor angularly produced in middle; lateral edges angularly produced; length of anal segment nearly twice the width, parallel-sided, apex conically rounded and turned slightly dorsad, anus in middle with a small projection just in front of it, in lateral view the ventral edge curved dorsad; genital styles reaching to end of anal segment, spatulate, base narrow, apex bluntly pointed, dorsal edge with a small emargination near apex, ventral edge with a small emargination before middle and slightly sinuous basad of emargination.

LUZON, Laguna, Los Baños (*Baker*).

**Zoraida flaviventris sp. nov.**

*Male.*—Antennæ a little longer than face. Head, antennæ, legs, and ventral surface of thorax and abdomen yellow, dorsal surface fuscous brown, scutellum and four spots (sense organs?) on fifth and two on sixth abdominal tergites yellow. Tegmina hyaline, veins brown, costal, subcostal, and radial cells dark fuscous brown.

Ventral edge of pygophor roundly produced, width nearly twice the length, a depression at each corner and a small longitudinal carina down middle; anal segment longer than wide, apex broadly rounded, base slightly constricted, anus about middle, a small ridge between anus and base, lateral edges turned ventrad, in lateral view ventral edge deeply convex or even subangular; genital styles reaching to apex of anal segment, subspatulate, apex broadly pointed, a round knob on dorsal edge near base, a quadrate process, which is broader than long, on ventral edge near middle.

Length, 4 millimeters; tegmen, 9.7.

MINDANAO, Agusan River (*W. Schultze*), Bureau of Science collection.

*Female.*—Three specimens from Mindanao are a little darker than the male. Pregenital sternite a little broader than long, posterior edge obtusely angularly produced from sides to middle, a small emargination at apex of production; anal segment very little longer than broad, sides rounded, apex truncate or very obtusely angularly emarginate.

MINDANAO, Davao (*Baker*).

**Zoraida sinuosa** (Boheman) ? Plate I, fig. 14.

*Derbe sinuosa* BOHEMAN, Kgl. Sv. Vet. Akad. Handl.

In the Baker collection there are specimens under the above name (determined by Melichar), and in the Bureau of Science collection the same species stands under the name *Z. javanica* (Westwood). That it is the former (African) species, I doubt; and I do not consider it to be the latter species, as it does not agree with specimens that I have from Java. I leave it under Boheman's name until I can examine, or learn more about, the type of *Derbe sinuosa* Boh.

*Male.*—Ventral edge of pygophor produced at middle into a subturbinate process; lateral edges obtusely angular at sides of anal segment; anal segment long, projecting more than half beyond lateral projections, anus cephalad of middle, in dorsal view the sides subparallel as far as anus, then gradually narrowing to the sharply pointed apex, in lateral view curved ventrad, beaklike; genital styles as long as anal segment, ventral edge straight with a curved emargination about middle, dorsal edge produced angularly beyond middle, apex bluntly pointed, a small round knob with a minute curved spine on inner margin before middle.

*Female.*—Pregenital sternite longer than wide, hind edge subangularly produced from sides to middle; anal segment small, little longer than wide, subturbinate.

PALAWAN, Malampaya (*Schultze*), Bureau of Science No. 13908; LUZON, several localities. This appears to be the commonest species of *Zoraida* in the Philippines.

**Zoraida melichari** sp. nov. Plate I, fig. 18.

*Male.*—Subcosta and radius separating about middle of tegmen, subcosta faint, radial cell narrow, slightly widening toward apex, with a "false vein" down the middle; four cubital veins reaching hind margin; four median sectors.

Yellow or light brown, granulations on antennæ darker, a dark mediolateral mark on abdomen, genitalia reddish; a white,

waxy secretion at times covers the scutellum and middle line of abdomen. Tegmina hyaline; subcosta, radius, media (but not sectors), and base of cubitus reddish, other veins light brown; base of cubitus, base of median cell to first sector, radial, subcostal, and costal cells to apex fuscous, the dark color passing over base of second sector to first, and over base of third and fourth sectors and radial apical cross vein, lightly fuscous between veins on apical margin, the apices of veins there being lighter; wings reaching nearly to middle of tegmina, hyaline, with brown veins.

Ventral edge of pygophor at middle with a subangular process, a little longer than width of base, apex rounded; lateral edges broadly and bluntly angular at sides of anal segment; anal segment extending about a third beyond lateral projections, anus at about middle, in dorsal view sides subparallel or slightly concave, apex broadly rounded; genital styles reaching slightly beyond anal segment, dorsal edge angularly produced before apex, a small, round knob on inner border before middle, ventral edge with a small, curved emargination beyond middle, apex broadly angular.

*Female.*—Pregenital sternite subangularly produced from sides to middle; anal segment a little longer than wide, subturbinate.

Length, 4 millimeters; tegmen, 9.5.

MINDANAO, Lanao, Kolambugan (*Banks*), cotype in College of Agriculture, No. 18109, Davao (*Baker*).

In coloration this species is like the next preceding, but the short anal segment in the male, with its rounded apex, and the shorter and blunter genital styles distinguish it. The Davao specimens are darker than those from Kolambugan.

### Genus **LOSBAÑOSIA** novum

Head considerably narrower than thorax; vertex quadrate, apex truncate, narrower than base, disk excavate; face narrowing between eyes, then widening below eyes, again narrowing slightly, then widening; no distinct demarcation between face and clypeus, lateral carinæ of vertex continued down face to below antennæ; eyes round, bulging, with exceedingly small antennal emargination on ventral edge; length of clypeus subequal to face, lateral carinæ small, median carina distinct, continued onto face for some distance; antennæ cylindrical, as long as head and thorax together; thorax, legs, and abdomen as in *Zoraida.* Radius arising from subcosta about one fourth from base, subcostal cell very narrow; median vein very close to radius as far

as apical fourth, median basal cell short and broad, first median sector joined to cubitus, making four cubital veins; four simple median sectors (not counting one joined to cubitus); hind margin angularly excavate at apex of each cubital and median sector, giving the hind margin a serrated edge; wings reaching to apex of abdomen, lanceolate; a large anal stridulating area.

The neuration of this genus is similar to that of *Diostrombus;* but the radial and the media are much nearer together, and the first median sector is furcate and more closely associated with the cubitus.

**Losbañosia bakeri** sp. nov. Plate I, fig. 4.

*Female.*—Brown; apex of clypeus, labium, legs, and hind border of mesonotum lighter; head and pronotum darker, the latter speckled with white granules, a few light dots on mesonotum and many on abdomen, abdominal segments tinged with red, anal style red. Tegmina hyaline, dark fuscous over basal half of costal and entire subcostal and radial cells, the dark color expanding to hind margin at extreme base and over basal portions of cubital veins, also over basal portions of first and second median sectors, and over apical cells and veins, each "tooth" on hind margin fuscous; veins yellowish in hyaline portion of tegmina, red in fuscous portion; apical portion of costal cell with red and white splashes, red and white dots along costa, subcosta, radius, and media; wings hyaline, veins red, fuscous at apex and along veins, apex rounded. Pregenital segment longer than broad, in lateral view concave in middle, posterior edge angularly produced in middle, between the angular projection and genital styles there is a small, quadrate, black plate; anal segment small, about as broad as long, anus at base, beyond which it forms a half cylinder, apex slightly emarginate; genital styles well developed, as in *Zoraida.*

Length, 4.5 millimeters; tegmen, 10.

LUZON, Mount Maquiling (*Baker, Muir*).

Unfortunately I have seen only female specimens.

## Genus **PEGGIA** Kirkaldy

*Nebrissa* STÅL, Öfv. Vet. Akad. Förh. (1870), 27, 751 (name preoccupied).

*Peggia* KIRKALDY, Entomologist (1901), 34, 6 (new name).

**Peggia nitida** (Stål). Plate I, fig. 1.

*Nebrissa nitida* STÅL, Öfv. Vet. Akad. Förh. (1870), 27, 751.

I have seen no specimen that I can identify with any satisfaction as *P. nitida.* This is to be regretted, as it prevents me from

defining the genus with any certainty. That it may clash with *Peggiopsis* Muir is probable. One female specimen in the Bureau of Science collection, which stands under this name, does not agree very well with Stål's description. I accept it provisionally and associate two other specimens with it. The following description is taken from the above-mentioned specimen:

Vertex quadrate, base wider than apex; face narrow with a fine longitudinal groove in the center; clypeus much longer than face, tricarinate, sides flattened; antennæ longer than head and thorax together, narrow, flat, sense organs evenly distributed; mesonotum broader than long, carinæ obsolete. Tegmina with costal cell arcuately produced at base, distad of which it is exceedingly narrow; radial cell so narrow from base to near third median sector that the median vein appears to be united to the radius, beyond this point it widens suddenly; four median sectors and four cubital veins; wings rudimentary, not reaching to middle of abdomen. Dark brown; head, dorsal half of antennæ, pleuræ of pronotum, legs, and middle of abdomen lighter brown. Tegmina hyaline with reddish brown veins, basal portion to first median sector fuscous with two small, hyaline spots in middle, a dark fuscous mark at apex of subcosta, extending along radius to apex of media. Pregenital sternite wider than long, posterior edge obtuse-angularly produced from sides to middle, disk subconcave when viewed in profile; anal segment small, broadly lanceolate, apex slightly emarginate.

NEGROS, Occidental Negros, Bago (*Banks*), Bureau of Science No. 6631.

**Peggia irrorata** sp. nov. Plate I, fig. 16.

*Male.*—Vertex very short, broad; face broadest at base, slightly narrowed between eyes, carinæ fine, not contiguous; antennæ as long as head and thorax combined, flattened; thorax similar to that of *Zoraida;* abdomen slightly compressed, dorsally arched. Costal cell exceedingly narrow, especially beyond basal fourth; subcosta and radius separating about one fourth from base, but they remain so near together that they are practically contiguous to near apex; radial cell very narrow to near apex where it widens very slightly. Cubitus with four veins extending to hind margin, the fifth joining a cross vein near margin; four median sectors; wings minute, not reaching middle of abdomen. Brown, a median and lateromedian lighter marks on mesonotum, the lateral edges of pronotum light with two small dark marks; abdomen dark brown, speckled all over with lighter granules.

Costa, subcosta, and radius with apical veins reddish, costal and subcostal cells yellowish, other veins fuscous brown, fuscous in radial cell and less distinctly so in apical cells, rest of tegmina hyaline; wings hyaline with brown veins.

Ventral edge of pygophor produced in middle into a lanceolate process, which is a little longer than broad; lateral edges angularly produced at sides of anal segment, the apex acutely pointed; anal segment longer than broad, slightly narrowed before middle, apex rounded, anus a little beyond middle, a small, elevated ridge immediately basad of anus; genital styles reaching to end of anal segment, apices rounded, ventral edges arcuately excavate on distal half, dorsal edges slightly angular about middle.

Length, 3.5 millimeters; tegmen, 9.

*Female.*—Like the male, but with three light marks across radial cell near the first, third, and fourth median sectors. Pregenital sternite a little broader than long, posterior edge obtuse-angularly produced from sides to middle, disk in middle concave.

LUZON, Laguna, Mount Maquiling (*Muir*); Ilocos Norte, Duñgon Duñgon (*Banks*), a pair taken in copula, cotype in College of Agriculture, No. 18327.

## Genus PEGGIOPSIS Muir

*Peggiopsis* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 72.

Most of the species of this genus are easily distinguished from species of *Zoraida* Kirkaldy by the broad, flat antennæ, but a few species have the antennæ narrower and not so distinctly flattened. In all such species the wings are rudimentary and do not reach to the end of the abdomen. It is possible that this genus may clash with *Peggia* Kirkaldy, the type of which I am uncertain about.

The nine species I place under this genus are distinguished as follows:

*Key to the species of Peggiopsis.*

$a^1$. Wings reaching to the end of abdomen or beyond.

$b^1$. Antennæ longer than head and thorax together; each of four abdominal tergites with a row of black spots; anal segment of male long, apex acute, apical third turned ventrad, forming a right angle with basal portion ..... dorsimaculata.

$b_2$. Antennæ not longer than head and thorax together; abdomen without black spots.

$c^1$. Veins of tegmina yellow: apex of male genital style truncate. pallida.

$c^2$. Veins of tegmina brown; apex of male genital style forming a long, blunt spine turned inward ..... pseudojavana.

$a^2$. Wings rudimentary, not reaching to the end of abdomen.

$d^1$. Antennæ not longer than head and thorax together. Veins of tegmina yellow; anal segment of male longer than broad, subquadrate, narrowing to apex which is emarginate..... puncticosta.

$d^2$. Antennæ distinctly longer than head and thorax together.

$e^1$. Three rows of black spots on dorsum of abdomen..... dorsopunctata.

$e^2$. Without such black spots.

$f^1$. Anal segment of male long, narrow, apex subacute; antennæ with dark band near apex..... pseudopuncticosta.

$f^2$. Anal segment of male with rounded apex or with small emargination.

$g^1$. Medioventral process of male pygophor triangular....flavicornis.

$g^2$. Medioventral process of male pygophor lanceolate. pseudoflavicornis.

$g^3$. Medioventral process of male pygophor spatulate with acute apex ..... stäli.

**Peggiopsis dorsimaculata sp. nov.**

*Male.*—Wings reaching beyond apex of abdomen; antennæ about as long as head and thorax together, flattened, sense organs most numerous along the raised edges. Ochraceous, thorax slightly fuscous, abdomen lighter, antennæ yellow with red sense organs, the second to sixth abdominal tergites each with a row of raised black spots (sense organs?), anal segment tinged with red. Tegmina hyaline, very slightly fuscous, subcosta, radius, and media red, median sectors and cubital veins brown, fuscous over basal portion of costal and radial cells, darker fuscous over radial cross vein, base of sectors, apex of third sector, and subcostal cell; wings fuscous hyaline with brown veins.

Medioventral process of pygophor lanceolate, the length about twice the breadth; anal segment lanceolate, length about four times the width, apex blunt, apical third turned ventrad; anus about one third from base, dorsal surface longitudinally ridged from base to anus; genital styles reaching to bend in anal segment, base narrow, wide distad of middle, ventral edge sinuate, a carina near, and parallel to, ventral edge, dorsal edge roundly ampliate on apical two thirds, a small transverse carina between dorsal edge and ventral carina, apex narrowly truncate, the corners forming broad points, those on the right styles more pronounced than those on the left.

Female unknown.

Length, 4 millimeters; tegmen, 13.

MINDANAO, Davao (*Baker*).

**Peggiopsis pallida** sp. nov. Plate I, fig. 13.

*Male.*—Antennæ scarcely as long as head and thorax together; face not produced below eyes; a longitudinal "false vein" in the apical half or radial cell. Light yellow, sense organs on the antennæ brownish. Tegmina hyaline, slightly opaque with waxy secretion, veins light yellow.

Length, 2.7 millimeters; tegmen, 8.5.

*Female.*—Similar to the male. Pregenital sternite wider than long, posterior edge obtuse-angularly produced from sides to middle; anal segment a little longer than broad, sides arcuate, apex roundly pointed, anus at base.

Length, 2.5 millimeters; tegmen, 8.5.

LUZON, Laguna, Los Baños (*Baker*), Mount Maquiling (*Baker, Muir*); NEGROS, Occidental Negros, Bago (*Banks*), Bureau of Science No. 6632.

**Peggiopsis pseudojavana** sp. nov.

*Male.*—Antennæ hardly as long as head and thorax, flat; tegmina and wings as in *P. pallida.* Yellow, inclining to red on dorsum; tegmina hyaline, subcosta, radius, and base of median vein yellowish; rest of veins brownish; wings hyaline, veins brown.

Ventral edge of pygophor produced into a small process, longer than broad, narrowing to the bluntly pointed apex; lateral edges forming an angle at sides of anal segment; anal segment large, longer than broad, slightly constricted at base, rounded at apex, which is turned ventrad; anus before middle; genital styles narrow, about as long as anal segment, apex forming a long blunt spine turned in at right angles to basal portion, ventral edge straight, with a round process about a third from base, dorsal edge slightly arcuate.

Length, 2.7 millimeters; tegmen, 7.

MINDANAO, Butuan (*Baker*).

A female from Los Baños (*Muir*) that I associate with this species is less red in color, front femora with fuscous streak, hind tibiæ with middle and apical spines black, and a black mark on apical half; anal segment red. Hind edge of pregenital sternite slightly and roundly produced from sides to middle, wider than long, with a wide depression along middle. Another female from Basilan (*Baker*), which could equally well belong to this species, has the basal portion of the disk drawn out into a blunt spine.

**Peggiopsis puncticosta (Melichar).**

*Zoraida puncticosta* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 433.

The long, flat antennæ and the rudimentary wings place this species in the genus *Peggiopsis*. One male in the Baker collection from the type locality (Mount Maquiling) that agrees with Melichar's description has the genitalia as follows: Medioventral process of pygophor acutely triangular, the length about twice the width at base; anal segment subquadrate, length about twice the width at base, the width of apex about half that of the base, apex slightly emarginate, anus near middle; genital styles large, narrow at base, gradually widening to apex, which is truncate with rounded corners, dorsal edge concave, ventral edge convex, a small subangular process on ventral edge near base.

**Peggiopsis dorsopunctata (Melichar).**

*Zoraida dorsopunctata* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 434 (Mount Maquiling).

The long, flat antennæ indicate that this is not a *Zoraida*.

I have one specimen that may be the female of this species. Face in profile slightly projecting below eyes; antennæ flat, half as long as head and body, edges subparallel; cubitus with six veins extending to hind margin. Yellow, edges of antennæ reddish; mesonotum slightly fuscous, dorsal edges of tegulæ fuscous, two spots on scutellum, second, third, and fifth abdominal tergites, each with two spots, anal segment reddish. Hind margin of pregenital sternite obtusely, angularly produced from sides to middle, disk flattened; anal segment longer than wide, sides very slightly arcuate, narrowed toward apex, which has a distinct angular emargination; anus at about middle.

LUZON, Los Baños (*Muir*).

**Peggiopsis pseudopuncticosta sp. nov.**

Antennæ flat, broad, as long as thorax and abdomen together; wings not reaching to the middle of the abdomen; apical half of costal cell narrow; radial cell narrow to the cross vein, beyond which it is wider. Light brown, reddish over the abdomen; slightly fuscous near base of antennæ and a dark band near the reddish apex, three dark marks on mesonotum, which are broadest posteriorly. Tegmina hyaline with yellowish veins, costal cell with a series of some forty minute black spots.

Medioventral process of pygophor conical in outline with an acute apex; lateral edges obtusely angled; anal segment long

and narrow, length about thrice the width of base, anus slightly distad of middle, sides subparallel to anus then slightly converging to the rounded apex; genital styles boomerang-shaped, widest on apical half, ventral edge concave, a rounded emargination basad of middle of dorsal edge.

Length, 3.3 millimeters; tegmen, 9.

MINDANAO, Davao (*Baker*).

**Peggiopsis flavicornis** (Melichar). Plate I, fig. 11.

*Zoraida flavicornis* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 433.

The large, flat antenna places this species in *Peggiopsis*. In the specimens I identify as this species, the subcosta leaves the radius level with the first median sector; it is very obscure and parallels the radius to the apex; the costal area is narrow, especially in the distal half, but distinct; radial cell very narrow to halfway between second and third median sectors, then suddenly broad to apex; four cubital veins reaching posterior margin, the first median sector forming part of the cubital system; four median sectors. Vertex triangular, depressed in middle, lateral carinæ meeting at apex; face elongate diamond-shaped, widest below eyes, a fine hair line divides carinæ on middle of face, the latter diverging at apex.

*Male.*—Medioventral edge of pygophor produced into a small triangle turned dorsad; lateral edges straight; length of anal segment about twice the breadth, slightly narrowed at middle, rounded toward apex, where there is a slight emargination, anus in middle, a small ridge across segment just basad of anus; genital styles longer than anal segment, narrow, curved dorsad, inner surface concave, outer convex, narrowest at base, apex rounded, slightly constricted near apex.

*Female.*—Pregenital sternite convex, wider than long, posterior margin obtuse-angularly produced from sides to middle; anal segment a little longer than broad, sides slightly arcuate, narrowing slightly to the emarginate apex, anus at base, a small angular projection from preanal tergite covering the base.

LUZON, Laguna, Los Baños (*Muir*), College of Agriculture No. 18132.

**Peggiopsis pseudoflavicornis sp. nov.** Plate I, fig. 10.

*Male.*—In profile the face below eyes projects slightly; antennæ as long as body, flat and broad, otherwise as in *P. flavicornis;* in color similar to *flavicornis,* but without the fuscous shading on mesonotum and the spots on scutellum.

Ventral edge of pygophor produced in middle into a broadly lanceolate process; lateral edges projecting angularly beside anal segment; anal segment longer than broad, narrowing to the apex, which has a minute emargination, anus in middle, a small projection arising basad of anus; genital styles longer than anal segment, concavo-convex, narrow at base, apex rounded, ventral edge with a large notch near apex and a small one more basad, dorsal edge with two small projections near the middle. These styles are larger and wider than in *P. flavicornis*.

Length, 3.3 millimeters; tegmen, 10.

LUZON, Tayabas, Malinao (*Baker*).

**Peggiopsis ståli** sp. nov.

*Male*.—Antennæ flat, longer than head and body, narrowed toward base and apex; face not distinctly protruding below eyes. Tegmina with four cubital veins extending to hind margin, four median sectors; subcostal cell very narrow, commencing about middle of tegmen; radial cell very narrow at base, gradually widening to apex; costal cell distinct, but narrow, slightly wide in basal third; wings rudimentary, not reaching to middle of abdomen.

Ventral edge of pygophor produced into a spatulate process with the apex drawn out to a fine point, slightly laterad of this process provided with two small knobs, lateral edges bluntly angular at sides of anal segment; anal segment much longer than wide; parallel-sided, turned ventrad at apex; apex wide, roundly emarginate, anus in middle, a small ridge basad of anus, genital styles not so long as anal segment, narrow at base, widening to the truncate apex, dorsoapical corner produced into a rounded point, ventral edge sinuous, dorsal edge with two small processes near middle, the distal one rounded, basal one a bent, blunt spine.

Yellow, facial carinæ and edges of antennæ tinged with red, lateral edges of pronotum red, fuscous on sides of abdominal tergites, anal segment red. Tegmina hyaline, basal third of costal cell yellow, apical two thirds of costal cell, subcostal cell, and basal portion of radial cell red, middle portion of radial cell fuscous; costa, subcosta, and radius red; other veins brown, color in three apical veins fades out at apex.

Length, 3 millimeters; tegmen, 8.75.

MINDANAO, Lanao, Kolambugan (*Banks*).

Certain characters of this species approach those of the genus *Peggia* (*Nebrissa* Stål).

Genus **MINDANA** novum

Vertex very short and very broad with a fine carina around the edges; face as broad as the vertex, constricted on lower half between antennæ, the fine carinæ of vertex continued down the center of the face with a fine groove between them, no distinct carinæ on lateral edges; eyes round with a small antennal emargination on lower edge; clypeus longer than face, carinæ obsolete; antennæ large and flat. Costal cell narrow on basal fourth, beyond which it is practically obsolete, subcostal cell very narrow, radial cell very narrow to cross vein, beyond which it widens considerably, cubitus with four veins reaching hind margin, media with four sectors; wings rudimentary, not reaching to middle of abdomen. Genital styles of female well developed.

**Mindana latifrons** sp. nov. Plate I, fig. 12.

Antennæ longer than thorax and abdomen together, arista a little cephalad of apex, beyond which the apex is subacute; surface studded with brown sense organs, which are most numerous around the edges. Tarsi and apices of femora fuscous; abdomen with two dark, shining bands across dorsum broken in the middle; genitalia dark fuscous. Tegmina clear hyaline, dark fuscous over apical half of costal and all subcostal areas, extending at apex of tegmen to apex of media, veins dark fuscous.

Medioventral process of pygophor turbinate, with the acute end apical; anal segment subcaudate, with the acute end basal, slightly longer than broad, anus in middle; genital styles long, narrow, slightly curved, apex rounded, a small obtuse-angular projection on ventral edge near base, a small, round projection on dorsal edge about middle.

Length, 4 millimeters; tegmen, 10.

*Female.*—Slightly fuscous over middle of pro- and mesonotum, otherwise similar to the male.

Pregenital sternite broader than long, hind margin obtuse-angularly produced from sides to middle; anal segment longer than broad, slightly narrowed to the apex, which is emarginate.

Length, 4 millimeters; tegmen, 10.

MINDANAO, Butuan (*Baker*), 1 female; Davao (*Baker*), 1 male.

## Genus PROUTISTA Kirkaldy

**Proutista mœsta (Westwood).**

*Derbe (Phenice) mœsta* WESTWOOD, Ann. & Mag. Nat. Hist. (1851), II, 7, 209.

*Proutista moesta* KIRKALDY, Entomologist (1904), 279.

Common on sugar cane at Los Baños. This is a very common and widely distributed insect, but I have not been able to find the young.

LUZON, Manila (*Banks*); Mindoro, Mangarin (*Banks*). Bureau of Science Nos. 2256, 6499, 17022.

**Proutista nigritarsis sp. nov.**

*Male*—Labium flattened and widened toward the apex. Light brown, clypeus and proboscis dark brown or black, carinæ of thorax and legs lighter, apex of tibiæ and third tarsal segment black, abdominal segments with darker marks along hind margin. Tegmina very similar to those of *P. mœsta* (Westwood), but with markings browner and not so extensive, especially in the apical median cells.

Pygophor with ventral edge straight; anal segment long, narrow, subparallel-sided, apical third turned ventrad at a right angle to basal portion, apex rounded; genital styles long, narrow, subparallel-sided, slightly bent a little beyond middle, apex rounded and slightly swollen, forming a small knob; a small, thick spine arises from the dorsal edge near base.

Length, 2.7 millimeters; tegmen, 6.3.

*Female.*—Similar to the male in size and coloring. The small plates at the sides of the genital area larger than in *P. mœsta* and considerably thickened.

MINDANAO, Zamboanga (*Baker*).

## Genus NEOCAMMA Melichar

**Neocamma trifasciata Melichar.**

*Neocamma trifasciata* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 435, Pl. 1, figs. 1–4.

I have not seen specimens of this genus, but according to Melichar's figures it differs from allied genera in having the clavus closed, the claval suture and claval vein extending to the hind margin; the subcosta and radius separate near base, but amalgamate again near apex; the neuration of the wing also differs. In coloration this species is similar to *Paraproutista trifasciata* Muir.

## Genus PARAPROUTISTA Muir

**Paraproutista trifasciata** sp. nov. Plate I, fig. 2.

*Male.*—In coloration this appears to be similar to *Neocamma trifasciata* Melichar. Light brown or reddish yellow; clypeus and a small mark across pronotum darker; antennæ, legs, and anal segment lighter. Tegmina and wings as in *Neocamma trifasciata.*

Pygophor scarcely differentiated from abdominal segments, a small, pointed process in middle of ventral edge, no emargination around anal segment; anal segment short, subtubular, ventral edge at apex forming a point turned ventrad; genital styles short, broad, subcircular, depressed from middle to dorsal edge.

*Female.*—Genital area sunk below surface, elongate oval; anal segment in dorsal position, short and tubular, anus situated at end.

Length, 3 millimeters; tegmen, 7.5.

LUZON, Laguna, Los Baños (*Muir*), two cotypes in College of Agriculture, No. 18131.

**Paraproutista luzonensis** sp. nov.

*Male.*—This species is similar to *P. trifasciata,* but is redder in color, especially on abdomen; the three fuscous marks on tegmina are wider, especially on the costal border.

Anal segment as in *P. trifasciata,* but the apex broader and slightly emarginate, and the genital styles narrower and longer.

Length, 2.5 millimeters; tegmen, 7.

Luzon, Laguna, Mount Maquiling (*Baker*).

**Paraproutista maculipennis** (Banks).

*Jada maculipennis* BANKS, Phil. Journ. Sci., Sec. D (1910), 5, 39, Pl. 3, fig. 8.

The short club-shaped antennæ and the two cubital veins and six median sectors, the third of which is furcate, place this species in *Paraproutista.* The face in profile does not project conically, so it cannot be placed in *Jada.*

*Male.*—Ventral edge of pygophor obtuse-angularly produced from sides to middle, the sides of the process being slightly concave, the apex with a fine transverse suture; lateral edges acute-angularly produced at sides of anal segment, length of processes greater than width at base; anal segment longer than lateral processes, narrow, narrowing to the pointed apex, which is slightly curved ventrad; anus before middle; genital styles not so long as anal segment, rounded at apex, edges subparallel.

**Paraproutista platypes sp. nov.**

*Male.*—Hind tarsi laterally flattened. Dark fuscous brown; carinæ of thorax and posterior angle of mesonotum lighter, legs light brown, tarsi and apex of hind tibiæ fuscous. Tegmina fuscous brown with yellowish hyaline areas forming eight or nine irregular spots in costal cell, continuing into radial cell in middle and across subcostal cell near apex, lighter over the cubital veins and the cross veins of the first three median sectors; some irregular marks over apical half of third and fourth median sectors and an irregular triangular spot at apices of tegmina, veins dark; wings fuscous with dark veins.

Ventral edge of pygophor straight; anal segment subparallel-sided, length a little more than twice the width, anus in middle, slightly narrowed and rounded at apex; genital styles acutely angular, length about twice the width of base, outer surface convex, a small angular projection on ventral edge near base.

Length, 4.3 millimeters; tegmen, 11.5.

*Female.*—A transverse ridge across middle of pregenital segment, posterior edge slightly rounded. In size and color similar to male.

MINDANAO, Davao (*Baker*).

**Paraproutista fuscipennis sp. nov.**

*Male.*—Fuscous brown, carinæ of head and thorax lighter, legs and proboscis yellowish. Tegmina dark fuscous, a series of about ten white spots on costa, small white spots on cross vein of cubitus and first three median sectors, a light spot at base of fourth and fifth median sectors, small white spots at apex of radius and media, which are otherwise dark, the subcosta and radius reddish.

Ventral edge of pygophor straight, lateral edges very slightly and roundly produced; anal segment with anus in middle, broad at base and narrowing rapidly, the portion distad of the anus forming a slender, sharp spine, slightly curved ventrad; genital styles triangular, subequilateral, a median carina from apex to base.

Length, 4 millimeters; tegmen, 9.5.

*Female.*—Similar to the male in size, but considerably lighter in color, the spots on costa more or less coalescing. Posterior edge of pregenital segment angularly produced from sides to middle.

MINDANAO, Davao (*Baker*).

## Genus **ACANTHOCERA** Melichar

**Acanthocera punctifrons** Melichar. Plate I, fig. 3.

*Acanthocera punctifrons* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 436, Pl. I, figs. 5–8.

The Los Baños specimens that I identify as of this species agree in specific characters with Melichar's description of *Acanthocera punctifrons,* but differ generically. The subcosta reaches the costal margin near apex, a folding under of the costal membrane giving it the appearance of Melichar's figures; the first median sector is attached to the cubital system, but not so distinctly as in *Paraproutista,* the second free sector is furcate, the clavus is open; this is the same tegmen as that of *Paraproutista.*

In the female the genital styles (ovipositor and sheath) are abortive as in *Proutista, Paraproutista, Neocamma,* and the Sikaianini.

In the male the ventral edge of pygophor is straight; a triangular projection arising from the inner surface fits perfectly between the genital styles, lateral edges entire; anal segment longer than broad, anus in basal third, beyond anus the segment curves ventrad and narrows to the truncate apex; genital styles broader than long, broadest at apex, which is slightly sinuous, ventral margins fitting against angular projection from pygophor.

## Genus **SIKAIANA** Distant

This and three allied genera form a small tribe of minute, delicate derbids closely allied to one another. Although they are rare in collections, yet they are abundant in their habitats; they most frequently rest upon the underside of leaves of various species of palms. In all the species with which I am acquainted, the anal area of the wing is large and is modified into a stridulating organ, the rest of the wing is small or minute. Whether these groups should be considered as genera or subgenera is a point on which homopterists may not all agree, but it is expedient to recognize the character upon which they are founded.

**Sikaiana makii** Muir.

*Sikaiana makii* MUIR, Proc. Hawaiian Ent. Soc. (1915), 3, 117.

One female agrees with the description of this species, but a male is required to make the identification definite.

LUZON, Laguna, Mount Maquiling (*Muir*), on palm trees.

Formerly only known from Formosa.

**Sikaiana vitriceps sp. nov.**

*Female.*—White or light yellow, fuscous on antennæ and abdominal tergites. Tegmina hyaline, vitreous, veins yellow, costa reddish, three yellowish spots at end of costal cell with red dots on costa between them, a square black mark at end of subcostal cell and a lighter mark beyond it to media; wings reaching to about end of basal median cell, hyaline, veins yellow, costa excavate from a little before middle to apex.

Anal segment exceedingly short, anal style large, roundly cordate, concavo-convex, arising from beneath the apex of segment; genital styles small and complex.

Length, 1.3 millimeters; tegmen, 4.

LUZON, Laguna, Los Baños (*Muir*), on palm trees.

## Genus MUIRIA Kirkaldy

**Muiria iridescens sp. nov.**

First joint of antennæ as long as wide or a little longer, second joint as long as head and thorax, flattened, set at side about one fourth from apex, second joint of female not quite so long.

Flavous, fuscous on abdomen; tegmina hyaline, iridescent, veins yellow, apical half of costal and radial cells yellowish with small white dots, a black spot at apex of costal cell and a lighter one at apex of media, a few small red dots along apex of tegmen; white, waxy secretion along apical edge; wings minute, of the same shape as in *M. stridula* Kirkaldy.

*Male.*—Lateral edges of pygophor forming a small, angular projection on each side of anal segment; anal segment much longer than lateral projections, flattened horizontally, lateral margins subparallel to beyond middle then gradually converging to the pointed apex, curved downward from about the middle; genital styles reaching beyond lateral plates, much longer than wide, apex diagonally truncate.

Length, 1.5 millimeters; tegmen, 4.

LUZON, Laguna, Los Baños (*Muir*), on palm trees.

## Genus LEOMELICHARIA Muir

**Leomelicharia nigrovittata sp. nov.**

Fuscous red or reddish brown, posterior edge of mesonotum lighter, legs and abdominal sternites yellowish. Tegmina hyaline, all the apical third and a band down the costa including the costal, subcostal, and basal median cells, and slightly beyond at the bases of median sectors black; a small white dot at apex of submedian cell; veins reddish, especially the costa and

costal cross veins and the apical veins; wings minute, hardly reaching beyond apex of scutellum, triangular, reddish; stridulating area large.

*Male.*—Ventral edge of pygophor at middle with a small angular process; the edges of pygophor produced into a long process, narrowing to the bluntly rounded apex; anal segment not reaching to end of lateral processes, little longer than wide, narrowed toward apex; rounded; anus at apex and ventrad; anal style in lateral view larger than, and appearing as the distal portion of, the anal segment; styles not reaching to end of lateral processes, narrow, broadest at base, apices turned inward, lying within the pygophor; ædeagus large.

*Female.*—Pregenital sternite slightly angularly produced at middle; styles (ovipositor and sheath) abortive; on each side of the genital area a plate (lateral plate), with its ventral portion subcircular; a small process in the middle meets a corresponding process from the other side, the dorsal portion conical; the anal segment, which lies between the conical portions, is small, about as long as broad; anal styles rounded at apex and longer than anal segment.

Length, 1.80 millimeters; tegmen, 5.8.

LUZON, Laguna, Mount Maquiling (*Muir*), common on palm trees; cotype in College of Agriculture, No. 18127.

**Leomelicharia delicata** sp. nov.

Light brown, pronotum with a light mark on the middle; mesonotum darker on lateral angles; abdomen dorsally with four lines of lighter spots; legs, apex of abdomen, and abdominal sternites yellow. Tegmina hyaline, vitreous, slightly tinged with yellow, a fuscous mark along costal area covering costal and subcostal cells to apex, a series of yellow spots occupying most of costal cell from middle to apex, veins reddish, especially costa and apical veins; wings minute, triangular, fuscous, stridulating area large.

*Male.*—Ventral edge of pygophor not drawn out into a point, lateral projections acutely angular, apex pointed; anal segments shorter than lateral projections, constricted near apex; anal style large, arising from apex of segment on ventral side, in lateral view the segment and style appear as if composed of three pieces; genital styles not quite reaching to end of lateral processes, narrow, bluntly pointed at apex, broader and rounder at base.

*Female.*—Lateral plates on genital area much smaller than in *L. nigrovittata*, dorsal plates forming a small triangle, the ventral

plate narrow, more like a style with a rounded base; anal segment wider than long, apex rounded, anal style large, circular, arising from below apex of segment.

Length, 1.5 millimeters; tegmen, 4.

LUZON, Laguna, Mount Maquiling (*Muir*), on palm trees; cotypes in College of Agriculture, No. 18129.

Leomelicharia delicatissima sp. nov.

Light brown or yellowish, thorax darker with a light median mark and some lighter marks on sides, abdominal tergites darker with light dots; genitalia yellowish. Tegmina hyaline, vitreous, subcostal and radial veins black, in apical half the black extending into radial, subcostal, and costal cells; a series of light dots in costal cell to apex, other veins reddish; wings minute, hardly reaching to third abdominal segment, fuscous on borders; stridulating area large.

*Female.*—Pregenital sternite with a small angular projection on middle of posterior edge; genital area more like that of *L. nigrolineata* than that of *delicata;* upper lateral plates more obtusely angular.

Length, 1.5 millimeters; tegmen, 4.

*Male.*—Unknown.

LUZON, Laguna, Mount Maquiling (*Muir*), on palm trees.

In this species the basal median cell is not quite so long as, and is a little broader than, in the type species, thus approaching *Sikaiana.*

Leomelicharia pulchra sp. nov.

Light brown or yellowish, abdomen darker with lighter spots, anal area light. Tegmina hyaline, vitreous; costal, subcostal, and basal median cells black or fuscous to apex, the color also extending slightly along base of median sectors; veins red, especially the costa and costal cross veins, three white dots in apical cells; wings very minute, triangular, fuscous, stridulating area large.

*Male.*—Lateral edges of pygophor produced into angular plates with blunted apices; anal segment little longer than broad, anal style at apex on underside, about as long as segment; styles reaching to end of lateral processes, narrow, apex bluntly pointed.

*Female.*—Posterior edge of pregenital sternites drawn to a point in the middle; lateral plates very much like those of *L. nigrolineata;* anal style large and circular.

Length, 1.5 millimeters; tegmen, 4.

LUZON, Laguna, Mount Maquiling (*Muir*), on palm trees; cotype in College of Agriculture, No. 18128.

Genus **DISTANTINIA** novum

Differing from *Leomelicharia* in the neuration of the tegmina. The cubitus arises from the median vein about one fourth from base; thus there are only two longitudinal veins in basal portion of tegmen.

**Distantinia nigrocacuminis** sp. nov. Plate I, fig. 5.

Brown; carinæ of vertex and pronotum, hind margin of mesonotum, edge of tegulæ, legs, genitalia, and small spots on abdominal tergites lighter. Tegmina hyaline, apical fourth dark fuscous with four white spots, the dark color continuing on costal and subcostal cells to middle of tegmina, another dark mark at junction of clavus with media, and a smaller one at extreme base; hind margin excavate at apex of median sectors, making the margin sinuate; veins reddish, especially the costa and the transcostal and apical veins; wings minute, triangular, fuscous, lighter on hind margin; stridulating area large.

*Male.*—Lateral edges of pygophor drawn out into acute angles; anal segment a little longer than broad, apex rounded, anal style about as long as segment, arising from ventral part of apex of segment; genital styles not reaching to end of lateral processes, acutely angular, attached to pygophor by one corner of base, apex subacute.

*Female.*—Posterior edge of pregenital sternite produced as a subspatulate process, depressed along middle; lateral plates well developed, ventral plate circular, dorsal plate subangular with obtuse apex; between them lies a small bifurcated sclerite (belonging to basal plate?).

Length, 1.8 millimeters; tegmen, 5.

LUZON, Laguna, Mount Maquiling (*Muir*), on palm trees; cotype in College of Agriculture, No. 18130.

In general appearance this is very much like *Leomelicharia nigrovittata* Muir, but the white spots in the black apex of the tegmina constitute a well-marked character.

RHOTANINÆ

The subfamily Rhotaninæ, as now constituted, contains six genera (*Decora, Levu, Rhotana, Genestia, Sumangala,* and *Mecynorhynchus*), but they are ill defined. There are still a few undescribed species before me, but I do not feel justified in naming them until I can define the genera more definitely.

## Genus RHOTANA Walker

**Rhotana punctovenosa** Melichar.

*Rhotana punctovenosa* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 437.

**Rhotana excelsa** Melichar.

*Rhotana excelsa* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 437.

This species has the carinæ of vertex not touching, and on face they only just touch between eyes. The species has more of the characters of *Decora* than of *Rhotana.*

**Rhotana basipunctulata** Melichar.

*Rhotana basipunctulata* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 438.

## Genus LEVU Kirkaldy

In the species of the genus *Levu* the shoulder keels are distinct.

**Levu lucida** Muir.

*Levu lucida* MUIR, Proc. Hawaiian Ent. Soc. (1915), 3, 136.

Veins redder than in the type species and the white marks not so distinct. Male pygophor laterally compressed; ventral edge straight; lateral edges very slightly angular; anal segment a little longer than width at base, narrowing steeply from base to apex, which is narrowly truncate, anus at apex; lateral styles reaching beyond anal segment, subparallel-sided, ventral apical corner rounded, dorsal corner angular, a small rounded process on inner dorsal edge near the middle.

LUZON, Laguna, Los Baños (*Muir*).

Originally described from a female specimen from Java.

**Levu irrorata** sp. nov.

*Male.*—Congeneric with *L. lucida,* which differs from the type of the genus in having the costal cell very broad, especially the basal half where the costal border is arcuately produced. Yellow; head and pronotum lighter than mesonotum, two or three small fuscous marks from eye to facial keels, two dark marks at posterior edge of mesonotum; legs fuscous. Tegmina fuscous, darkest at base, lighter along apical and posterior margins, three median apical cells vitreous with a small fuscous mark at apex of each cell, a series of five black specks near apical margin from end of costa to cubitus, veins spotted with fuscous and white, apical veins and apical cross veins tinged with red. The

white portions of tegmina often incrusted with a white, waxy secretion, making them very conspicuous.

Pygophor laterally compressed, edges entire, anal segment small, gradually narrowed to rounded apex; anus at apex; styles gradually widening to the wide, truncate apex.

*Female.*—Caudal edge of pregenital sternite angularly produced from sides to middle.

Length, 2.7 millimeters; tegmen, 5.

MINDANAO, Iligan (*Baker*); LUZON, Laguna, Los Baños (*Muir*), on palm trees; Tayabas, Mount Banahao (*Baker*).

## Genus **DECORA** Dammermann

**Decora pavo** Bierman.

*Decora pavo* BIERMAN, Notes Leyden Mus. (1910), **33**, 20.

The original description is not available, but I believe this determination is correct.

MINDANAO, Lanao, Kolambugan (*Banks*), College of Agriculture No. 18107; LUZON, Laguna, Los Baños (*Muir*).

## Genus **MECYNORHYNCHUS** Muir

**Mecynorhynchus fuscus** Muir.

LUZON, Laguna, Los Baños (*Baker*). Previously known from Java.

**Mecynorhynchus hyalinus** Melichar.

*Mecynorhynchus hyalinus* MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 437.

As Melichar's use of the specific name *hyalinus* in this genus, for a Philippine species, antedates my use of it for a Javan species,[6] the latter may be known as *Mecynorhynchus nigropunctatus* new name.

**Mecynorhynchus kershawi** Muir.

*Mecynorhynchus kershawi* MUIR, Bull. Hawaiian Sugar Plant. Assoc., Div. Ent. (1913), 12, 82; Proc. Haw. Ent. Soc. (1913), 3, 133.

Previously known from Borneo. Now recorded from Los Baños.

[6] *Proc. Hawaiian Ent. Soc.* (1915), 12, 134.

# ILLUSTRATIONS

## PLATE I

FIG. 1. *Peggia nitida* (Stål), tegmen, *C*, costa; *Sc*, subcosta; *R*, radius; *M*, media; *Cu*, cubitus; *Ms* 1, 2, 3, 4, median sectors; *Cu* 1, 2, 3, 4, cubital veins; *Cs*, claval suture; $Cl_1$, $Cl_2$, claval veins.
2. *Paraproutista trifasciata* sp. nov., tegmen.
3. *Acanthocera punctifrons* Melichar, tegmen.
4. *Losbañosia bakeri* g. et sp. nov., tegmen. (Lettering the same as in fig. 1.)
5. *Distantinia nigrocacuminis* sp. nov., tegmen. (Lettering the same as in fig. 1.)
6. *Banksiella pulchra* g. et sp. nov., tegmen.
7. *Neolamenia flava* sp. nov., front view of head.
8. *Neodendrokara crescentiformis* sp. nov., head in profile.
9. *Neocyclokara flava* sp. nov., tegmen.
10. *Peggiopsis pseudoflavicornis* g. et sp. nov., lateral view of apex of abdomen.
11. *Peggiopsis flavicornis* (Melichar), lateral view of abdomen.
12. *Mindana latifrons* g. et sp. nov., front view of head (one antenna viewed flat, the other at edge).
13. *Peggiopsis pallida* sp. nov., lateral view of apex of abdomen.
14. *Zoraida sinuosa* Boheman?, lateral view of apex of abdomen.
15. *Banksiella pulchra* sp. nov., lateral view of head.
16. *Peggia irrorata* sp. nov., lateral view of apex of abdomen.
17. *Neocyclokara flava* sp. nov., lateral view of head.
18. *Zoraida melichari* sp. nov., lateral view of apex of abdomen.

## TEXT FIGURES

FIG. 1. *Kamendaka mindanensis* sp. nov., ædeagus.
2. *Kamendaka luzonensis* sp. nov., ædeagus.
3. *Kamendaka tayabasensis* sp. nov., ædeagus.
4. *Kamendaka maquilingensis* sp. nov., ædeagus.

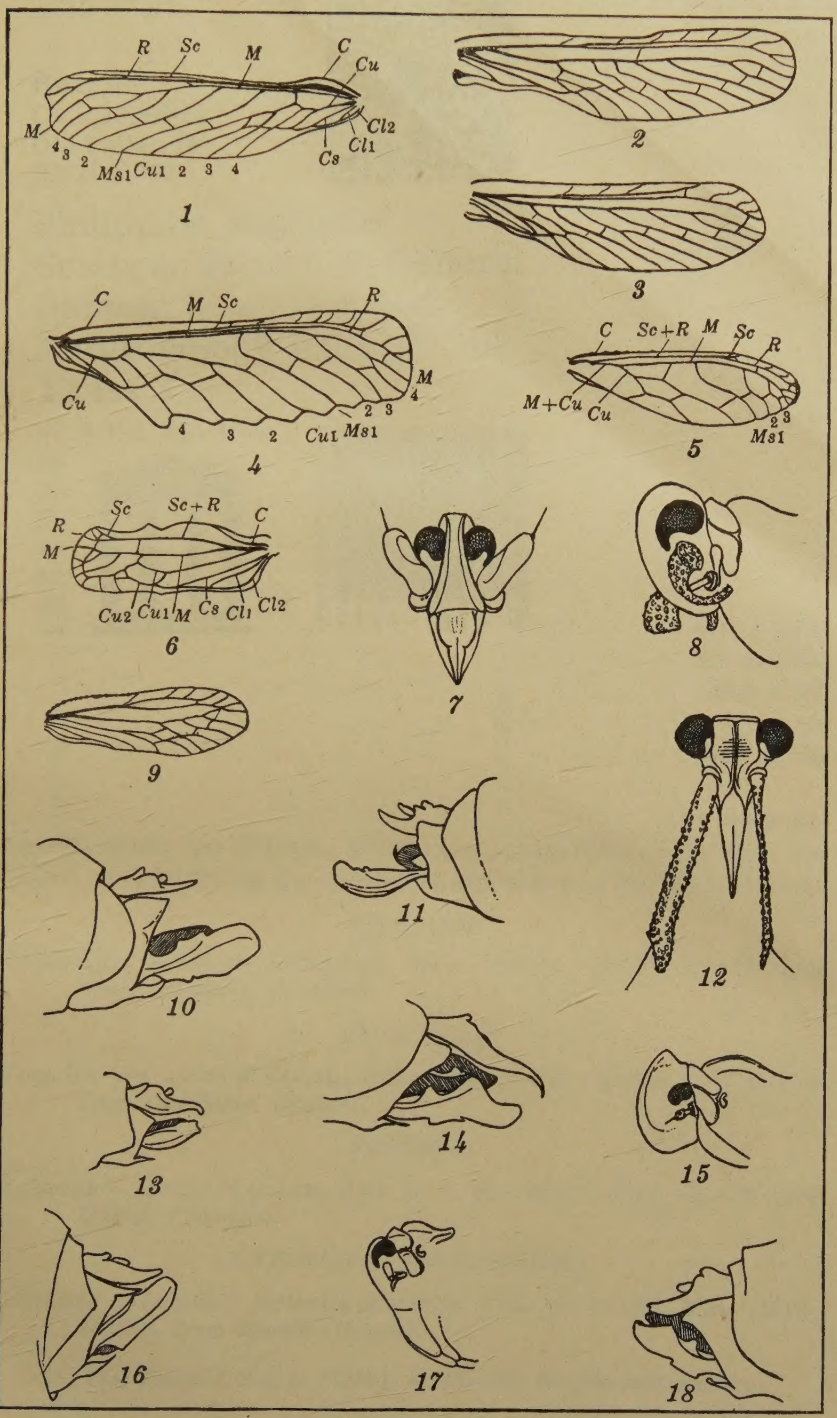


PLATE I. PHILIPPINE DERBIDÆ.